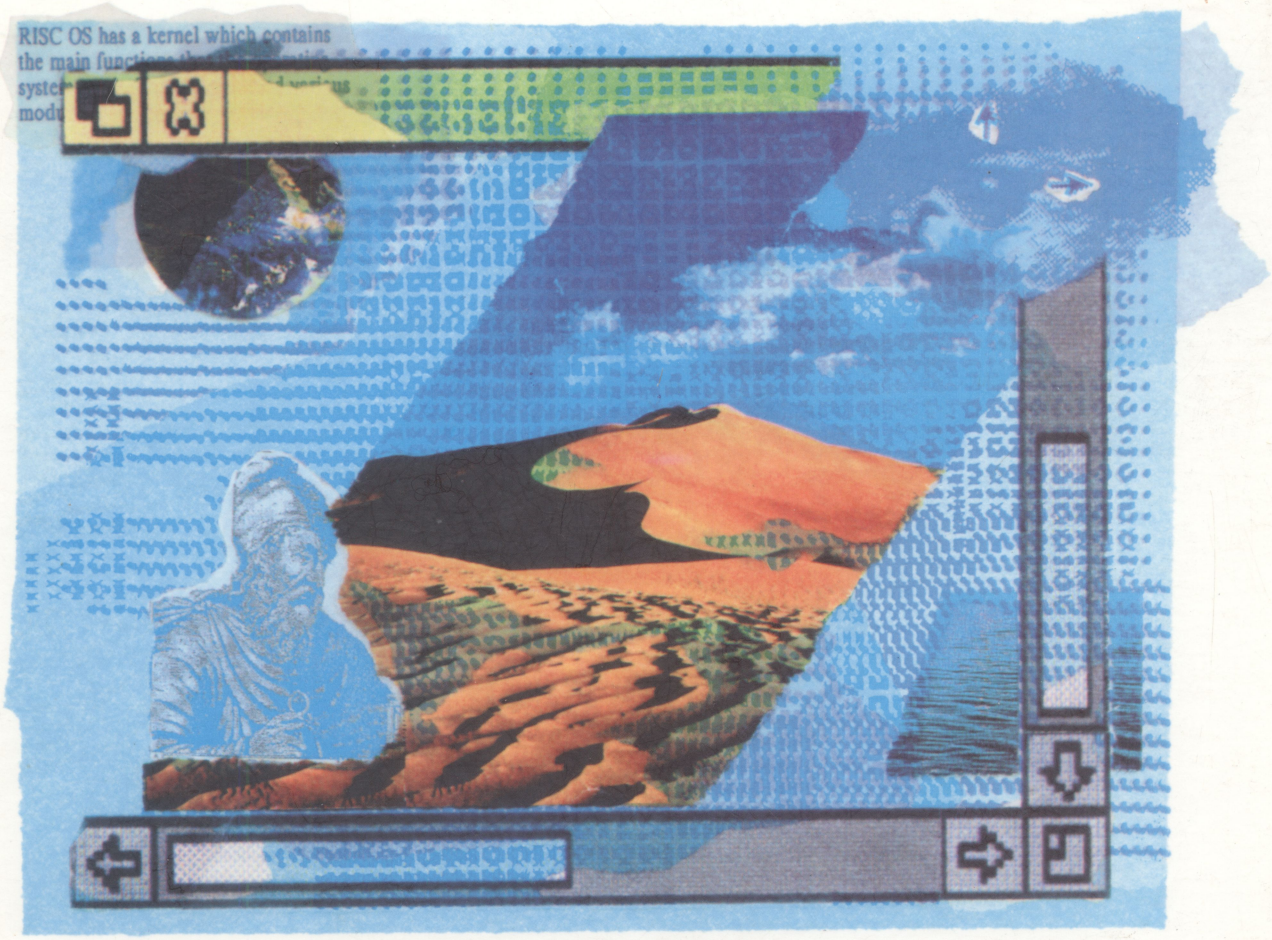
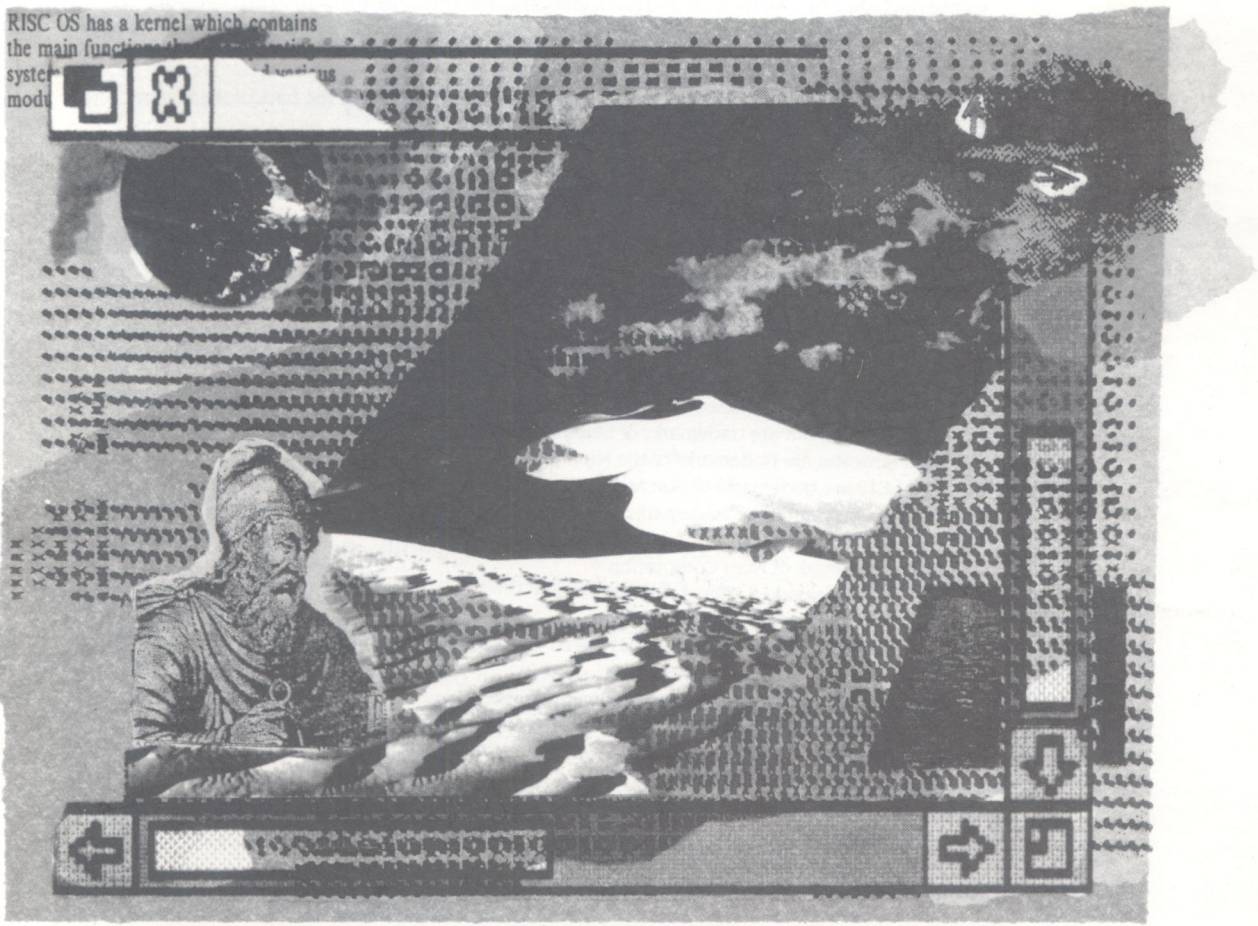
RISC OS 3
USER GUIDE



Acorn

RISC OS 3
USER GUIDE



Acorn

Copyright © Acorn Computers Limited 1991

Published by Acorn Computers Technical Publications Department

Neither the whole nor any part of the information contained in, nor the product described in, this manual may be adapted or reproduced in any material form except with the prior written approval of Acorn Computers Limited.

The product described in this manual and products for use with it are subject to continuous development and improvement. All information of a technical nature and particulars of the product and its use (including the information and particulars in this manual) are given by Acorn Computers Limited in good faith. However, Acorn Computers Limited cannot accept any liability for any loss or damage arising from the use of any information or particulars in this manual.

If you have any comments on this manual, please complete the form at the back of the manual, and send it to the address given there.

Acorn supplies its products through an international dealer network. These outlets are trained in the use and support of Acorn products and are available to help resolve any queries you may have.

Within this publication, the term 'BBC' is used as an abbreviation for 'British Broadcasting Corporation'.

ACORN and ECONET are trademarks of Acorn Computers Limited.

PostScript is a trademark of Adobe Systems Inc.
LaserWriter is a trademark of Apple Computer Inc.
HP and LaserJet are trademarks of Hewlett Packard Corporation
Citizen is a trademark of Citizen Watch Co. Ltd. Japan
Epson FX, LQ and MX are trademarks of Seiko Epson Corp.
NEC and Pinwriter are trademarks of the Nippon Electric Company
Star and LC10 are trademarks of Star Micronics Co. Ltd
IBM and IBM Proprinter are trademarks of International Business Machines Corporation
UNIX is a trademark of AT&T
ATARI is a trademark of Atari Corporation
MS-DOS is a trademark of Microsoft Corporation
Ethernet is a trademark of Xerox Corporation
NEC is a trademark of NEC Corporation
TI is a trademark of Texas Instruments Inc.
Helvetica and Times are trademarks of Linotype Corporation
ITC Zapf Dingbats is a trademark of International Typeface Corporation
Ethernet is a trademark of Xerox Corporation
AutoSketch is a trademark of Autodesk Ltd
ARM is a trademark of Advanced RISC Machines Limited
Clock was written by Minerva systems
Portrhouse font was designed by Graham Bartram
All other trademarks are acknowledged.

Published by Acorn Computers Limited
ISBN1 85250 104 9
Part number 0470,281
Issue 2 October 1991

Contents

About this guide ix
What's in this guide ix
What is an operating system? x
Running programs on your computer xi
The Applications suite discs xii
Important tips xii
Getting help xiii
Conventions xv
Ordering information xvi
Documentation roadmap xvii

Part 1: The desktop 1

1 The desktop Filer 3
Directory displays 4
Application directories 7
The Filer 8
Facilities offered by the Filer 10
Using the desktop background 23

2 Discs, networks and filing systems 31
Floppy and hard discs 31
Econet file servers 42
RAM discs 46
The Apps directory 48
Using DOS-formatted discs 50
Using Atari-formatted discs 53

3 Fonts 55
Built in fonts 55
Disc based fonts 56
About fonts 56
Using fonts 57
Printing with fonts 59
Adding more fonts 59

4 Printing 61
Setting up the printer 61
The printer manager 63
Choosing the right configuration 64
Configuring bit-image printers 65
Configuring LaserJet printers 67
Configuring PostScript printers 69
Communicating with the printer 71
Editing paper sizes 73
Printing a file 75
Advanced printing 77
Plain and fancy text printing 77
Speeding up graphics printing 78
Printing 1st Word Plus files 78
Downloading fonts to PostScript printers 79

Part 2: Desktop configuration 83

5 Setting the configuration 85
Starting Configure 85
Saving and loading configurations 86
Quitting Configure 87
The configuration windows 88
Discs 88
Floppies 89
Net 89
Printer 91
Mouse 92
Keyboard 93
Memory 94
Sound 95
Screen 96
Fonts 98
Windows 99
Applications 101

6 Fine tuning the configuration 103
Monitoring and controlling tasks and memory 103
Command line options 106
Starting up your desktop 'world' automatically 106
Shutting down and switching off the computer 107

7 Desktop boot files 109
Starting up your desktop 'world' automatically 109
Inside the desktop boot file 110
Editing the desktop boot file 112
Adding other parameters to the Boot file 113

8 Colours and screen modes 115
Setting desktop colours 115
Other Palette functions 116
Changing screen modes 117

9 System applications 121
!System 121
!Scrap 121
!Fonts 122

Part 3: Outside the desktop 125

10 Accessing the command line 127
Accessing the command line 127
Using the task window 128
The command line help system 131

11 Notes for command line users 133
Command line syntax 133
System devices 136
System variables 137
Command scripts 142
Using GS formats in scripts 147

12 Types of star command 149
Filing system commands 149
Disc-specific commands 150
Econet-specific commands 150
Other filing systems 150
Configuration commands 151
System variables 153
Module-related commands 153
Sound system commands 154
FX commands 154
Debugger commands 154
Desktop commands 155

Sprite commands 155
Font commands 155
Miscellaneous star commands 156

13 Star command summaries 157
Command syntax 157
The star commands 157

Appendices 197

Appendix A: Upgrading from RISC OS 2.00 199
Applications in ROM 199
The desktop 199

Appendix B: Getting the best out of 1MB computers 203
Resetting the computer 203
Choice of screen mode 204
Opening directory displays 204
Printing 204
Optimising memory usage 205
Using a RAM disc 205
Buying more memory 205

Appendix C: Resetting and power-on 207
Switching on 208
Resetting while switching on 208
Setting the monitor type 209
Using the Reset switch 210
Using the Break key 210
Restoring default values 210

Appendix D: Screen modes 215

Appendix E: Formatting a hard disc 219
How to format a hard disc 219
Entering the hard disc shape 220
Recording more than one error on a D (old map) format disc 222
Formatting a previously unformatted hard disc 222

Appendix F: RISC OS file types 225

Appendix G: BBC BASIC 229

BBC BASIC V and VI 229
Entering BASIC 230
Leaving BASIC 231
New features in BASIC VI 231
Writing and editing BASIC files 231
Command line syntax for BASIC 231

Appendix H: Fonts and the Font manager 235

Troubleshooting 239
Printing 239

Appendix I: The fancy text file format 241

Appendix J: Error messages 243

Error messages 244

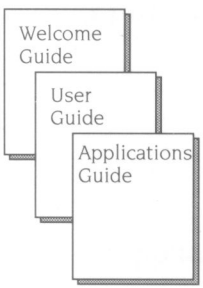
End-user licence conditions for RISC OS 3 249

1. Definitions 249
2. Licence 249
3. Term 250
4. Limited warranty and disclaimer of liability 250
5. General 250

Index 251

Reader Comment Form 261

About this guide



This guide, in conjunction with the *Welcome Guide*, describes the RISC OS 3 operating system. The applications that come with the operating system are described in the *Applications Guide*.

If you are new to your computer, you should first read the *Welcome Guide*. This tells you how to set the computer up and start using the RISC OS desktop, how to use the mouse to manipulate windows and files, and how to open menus and choose commands from them.

If you are upgrading your computer from RISC OS 2.00 (or 2.01), you should read the rest of this chapter and then turn to Appendix A, which lists the major changes in the desktop and operating system.

Throughout this guide the term 'RISC OS' refers to the current version (3) of the operating system. The previous version is referred to as 'RISC OS 2.00'. 'RISC OS 2.00' should be taken to include RISC OS 2.01

What's in this guide

If you have read the *Welcome Guide*, you should already have a working knowledge of the desktop. This guide builds on that knowledge.

Part 1: *The desktop* tells you more about the basic task of manipulating files and directories. It also describes how to print files and use storage devices such as disc drives.

Part 2: *Desktop configuration* tells you how to change the way the desktop behaves and how to automate your start-up procedure using boot files.

Part 3: *Outside the desktop* tells you about the Command Line Interface. This provides you with an additional way of communicating with the computer, one which programmers and experienced users will find especially useful.

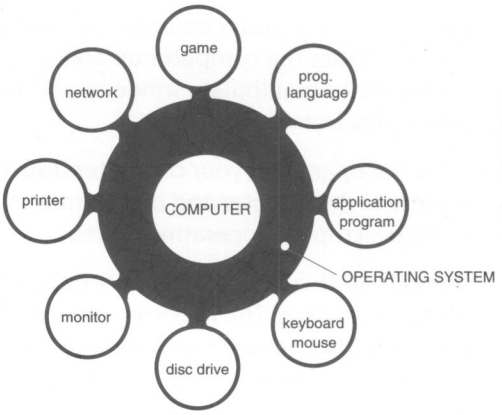
Finally, the *Appendices* contain reference material on subjects such as power-on reset variations, hard disc formatting and error messages.

At the end of the guide you will find a *Reader's Comment Form*, which you can return to us with comments or suggestions about this guide.

What is an operating system?

If you look in a computing textbook, it will probably describe an operating system in terms such as *"controls the operation, coordinating the use of input and output sources, the processing of data etc"*.

In practical terms, the operating system of a computer is the software interface between the computer's hardware on the one hand, and the programs it runs plus the other pieces of equipment it uses on the other. It could be represented graphically like this:



The operating system is, as it were, the glue between the computer and its programs and peripheral equipment. It allows you to load an application program from a disc, for example, and then determines how the program is run. It takes input to the program from the mouse and keyboard, and arranges to display the results on the monitor. When you have finished your session, it enables you to save your work back to the disc in a file.

How RISC OS operates

The RISC OS operating system consists of three layers:

The innermost layer, or the *core*, contains the programs that actually make the computer work and which we don't need to understand here.

The next layer is the *command line interface*. This is a traditional text-based interface which programmers use to write programs and scripts. Part 3 of this manual, *Outside the desktop*, gives an overview of all the commands used with the command line, together with an introduction to using them. If you plan to use the command line in more depth you should buy the RISC OS *Programmer's Reference Manual*.

The outermost layer is the *desktop*. This is the layer that this manual is mostly about. The desktop shows us files, directories and applications represented as icons. Applications display information in windows and, unlike some operating systems, you can have many different applications and windows on the screen at the same time. You should already have a good idea of how the desktop operates from reading the *Welcome Guide*.

Running programs on your computer

As sophisticated as it is, RISC OS just provides an infrastructure of facilities for your computer, making it easier for you to do things with it. Once you have grasped the basic principles of the RISC OS desktop, you will want to start using it seriously to run programs. You can keep coming back to this guide to learn more about the operating system and how to tailor it to suit your way of working.

Applications and games

Application programs, or applications, are designed to help you with your work or leisure activities. The best-known application is the word processor. Other applications include desktop publishing, drawing and painting. These and other software and hardware products can be purchased both from Acorn and from many independent companies. Details of these may be obtained from your Acorn supplier.

A number of applications and games are supplied with RISC OS, including a text editor, draw and paint programs, a music editor and two different calculators. These are described in the *Applications Guide*.

Programming languages

The BBC BASIC programming language is provided with RISC OS and if you plan to write BASIC programs on your Acorn computer you will find the BBC BASIC *Reference Manual* invaluable.

Other programming languages available from Acorn include:

- Acorn Desktop C
- Acorn Desktop Assembler

and for teaching purposes:

- Fortran 77 (Release 2)
- ISO-Pascal (Release 2).

Programmers and other users who want to find out about their machine at a greater level of detail than is covered in this guide will also be interested in the RISC OS *Programmer's Reference Manual*, which covers the RISC OS operating system and the desktop environment in more depth.

The Applications suite discs

Your computer is supplied with two floppy discs containing applications. This is in addition to the applications permanently held inside the computer in ROM (Read Only Memory).

Applications that control a system operation, such as configuration or printing, are described in this guide, while other applications are described in the *Applications Guide*.

The following applications are described in this guide:

Configure	FontPrint	HForm
Fonts	Scrap	
Printers	System	

The following applications are described in the *Applications Guide*:

Alarm	Edit	Paint	Squash
AlarmConv	Lander	Patience	65 Host
Calc	Madness	PrintEdit	65 Tube
Chars	Maestro	Puzzle	TinyDirs
Clock	Magnifier	SciCalc	Usage
Draw	MailMan	SetIcons	

Important tips

Using your computer safely

Before using your computer, you should read the *Guidelines for Safe Operation* printed near the front of the *Welcome Guide*.

Unexpected behaviour

If your computer starts behaving unexpectedly, or doesn't do anything at all, see the Chapter entitled *If things go wrong* in the *Welcome Guide*, which has solutions to most common problems.

Why has the screen gone blank?

If your screen goes blank while you are not using it, you can restore it by moving the mouse or pressing any key on the keyboard. This facility is designed to save wear on the screen, and is described in the chapter entitled *Setting the configuration* on page 85.

Getting out of a mess (resetting the computer)

You may run a program which causes your computer to 'hang up' – where pressing a key or moving the mouse has no effect. You can normally cure this by resetting the computer. To reset the computer, hold down Ctrl while pressing the Reset button. The position of the Reset button is shown in the *Welcome Guide*.

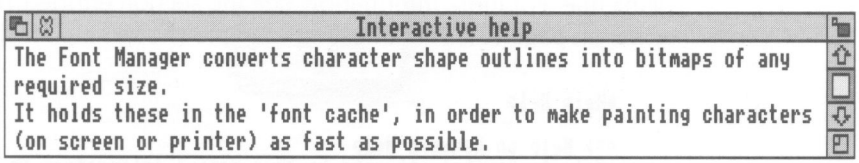
When you reset the computer, any unsaved data will be lost.

Getting help

The !Help application

The !Help application provides on-screen information as you use your computer. The desktop itself and most of the applications can give you help in this way. For information on how to use !Help, refer to the *Applications Guide*.

This is what the Interactive Help message looks like when you position the pointer over part of the Font window in the !Configure application.


Interactive help
The Font Manager converts character shape outlines into bitmaps of any required size.
It holds these in the 'font cache', in order to make painting characters (on screen or printer) as fast as possible.

The Help option

On the main Filer/Application submenu there is a Help option. Click on **Help** to display useful information about an application. For more information, see page 21.

Help on *Commands

If you want to find out about a particular *command, press the F12 function key to go into command line mode and then type *Help, followed by the command you want help on, and then press Return. To return to the desktop, press Return on a blank line. For more information, see the section entitled *The command line help system* on page 131. The following example shows help for the keyword Help.

```
*Help Help

==> Help on keyword Help
*Help <subjects> attempts to give useful information on the selected topics.
Special keywords include:
Commands        List all the available utility commands
FileCommands    List all the filing system-specific commands
Modules         List the module titles
Syntax          Explain the syntax message format
*
```

Conventions

The following conventions are used in this guide:

- Menu names and options are shown in bold type; for example:

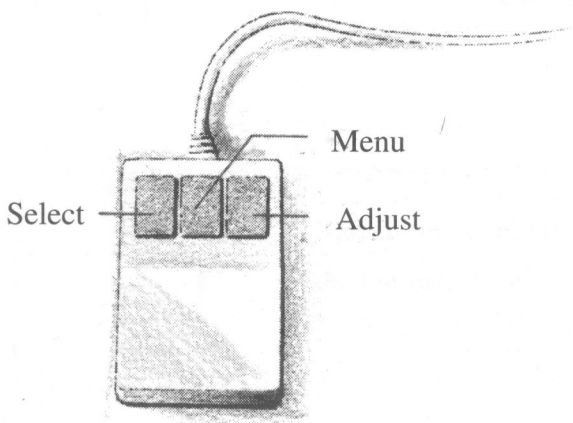
  Use the **Actual size** option in the **View** menu.

- Sometimes you will need to press one key while holding down another. This is shown like this:

  Ctrl-F9 means (hold down the Control key and press the function key F9).

The mouse

The mouse has three buttons. From left to right their names are Select, Menu and Adjust. The functions they perform depend on the application you are using. For some general principles refer to the *Welcome Guide*.



The Applications discs

There are two applications discs supplied with RISC OS.

At the top of the chapter or section referring to these applications you will see one of the following icons.

Applications on Applications disc 1 are denoted by this icon.

Applications on Applications disc 2 are denoted by this icon.

Applications in ROM (the Apps directory) are denoted by this icon.

Ordering information

The following additional manuals can be purchased from your supplier:

BBC BASIC *Reference manual*

RISC OS *Programmer's Reference Manual*

Additional copies of the RISC OS 3 *User Guide* and RISC OS 3 *Applications Guide* can also be purchased.

Technical Reference Manuals for most Acorn computers are also available.

The following Acorn products can be purchased from your supplier:

Software products

PC Emulator

Acorn Desktop Publisher

1st Word Plus

Acorn Desktop C

Acorn Desktop Assembler

Hardware products

I/O Expansion card

MIDI Expansion card

SCSI Expansion card

Network Products

Econet module

Ethernet Expansion card

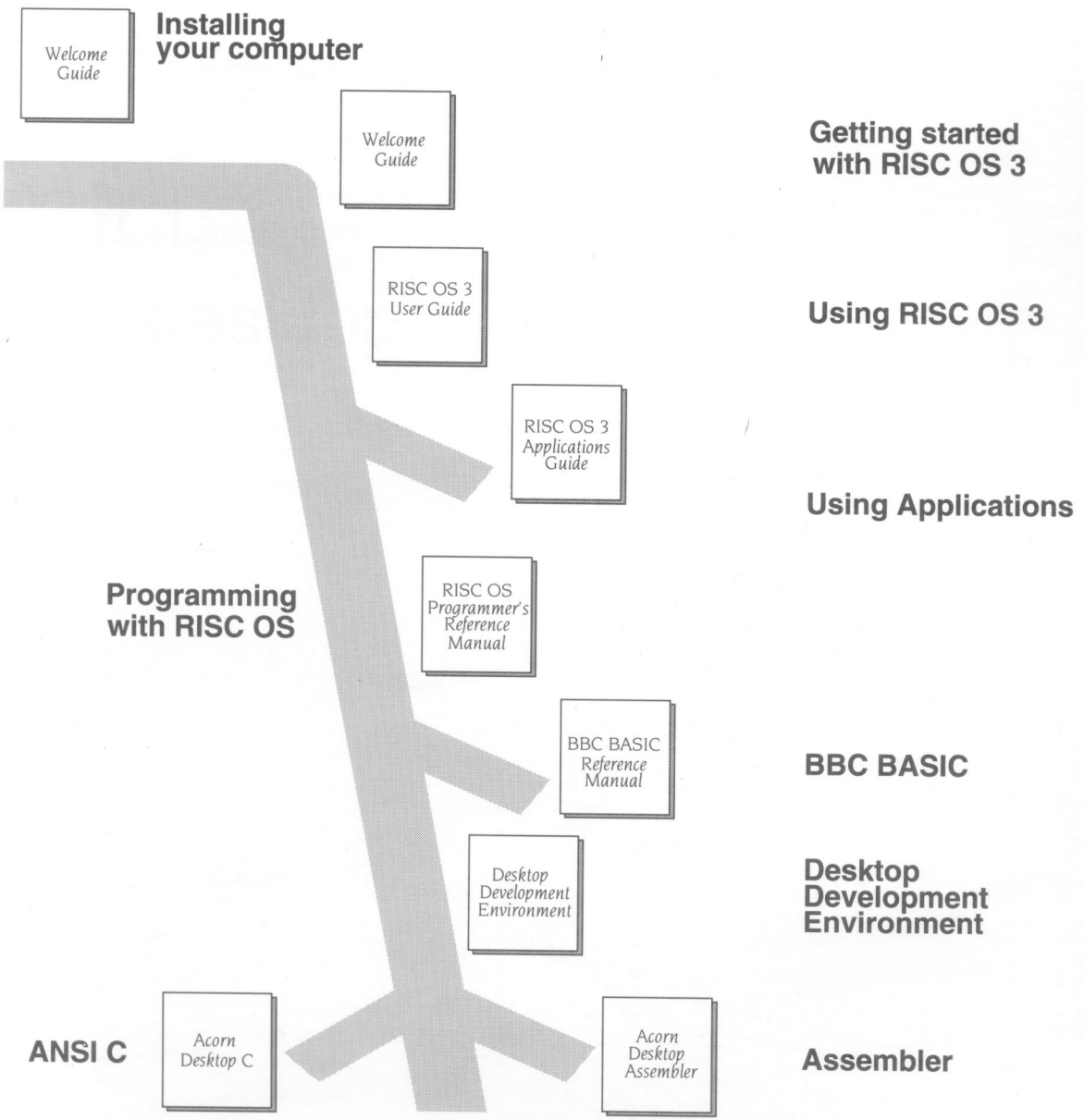
Level 4 File Server

TCP/IP Protocol Suite

Ask your Acorn supplier for a list of all Acorn products. In addition, many third party software and hardware products are also available.

Documentation roadmap

This roadmap will help you decide which tools and manuals you will need, as you learn about RISC OS.



Part 1:
The desktop

1 The desktop Filer

The chapter *Files and directories* in the *Welcome Guide* provides an introduction to the concept of the filing system, and to the basic filing tasks of loading, saving, copying, moving and deleting files, and creating new directories.

This chapter expands on the *Welcome Guide*, covering in more detail how the filing system works, and how you can use the file-handling features which RISC OS provides to make the best use of your computer, whatever you are using it for.

You use the filing system whenever you use the computer, it allows you to display and manipulate your files, directories and applications. There are several types of filing system, but generally they all work in the same way and you need not be aware of the differences between them.

If you want to find out which filing system you are using, look at the name in the title bar of the window. This name always starts with the filing system name, for example, ADFS. Filing systems are usually associated with physical storage devices. Here is a list of the main types of filing systems.

- Floppy discs and hard discs usually use ADFS (the Advanced Disc Filing System).

- Econet file servers use NetFS (the Network Filing System).

- Applications in the Apps directory (stored in the computer's ROM) use ResourceFS (the Resource Filing System).

- Applications stored on RAM disc use RAMFS (the RAM Filing System).

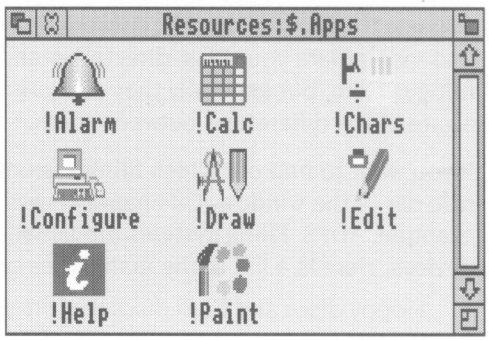
There are others which you may come across, such as SCSIFS (for computers fitted with SCSI interfaces), CDFS (for computers that use CD-ROM drives) and NFS, a high-speed networked filing system (for computers running the TCP/IP Protocol Suite).

The icons for the storage device(s) connected to your computer appear on the lefthand side of the icon bar. You can have only one RAM disc and one Resource filing system (the Apps directory), but you may be connected to more than one floppy drive, hard disc or network file server. These will be identified by different names or numbers.

Fortunately most users need to know very little about these different filing systems, as most of their functions are controlled from the desktop by one 'super' filing system, called the Filer, which is described later in this chapter. Features specific to individual storage devices and filing systems are covered in the next chapter.

Directory displays

The contents of filing systems are shown on the screen in directory displays. Clicking on the icon for a particular information storage device (such as a disc drive icon) opens a directory display. This is the directory display that you see when you click on the Apps icon:



Moving around the filing system

You can use the following techniques to find your way around the filing system:

To open a subdirectory display

Double-click Select on the subdirectory's icon (a folder). The subdirectory display will then appear on the screen in a new window.

If you double click on the icon for a directory that is already open somewhere on the screen, its directory display is moved in front of the other windows on the screen, rather than a new window being opened.

Advanced users may wish to know that pressing Ctrl while double clicking on a directory opens the directory without running the !Boot files of applications within that directory. This speeds up the opening of large directories, and saves memory.

To open a subdirectory display and close its parent

If a directory contains a subdirectory, then it is the 'parent' of that subdirectory. To open a subdirectory, and simultaneously close its parent, double-click Adjust on the subdirectory's icon.

To open the parent directory

To open the parent of a subdirectory, hold down Shift and click Adjust on the Close icon. You can also choose **Open parent** from the Filer menu (see page 8).

To open the parent of your user directory on an Econet file server, you will have to use **Open $** on the icon bar menu for the file server (see page 42).

To close a directory display

Click Select on the Close icon of the window.

To close a subdirectory display and open its parent

Click Adjust on the Close icon of the window.

To load any file into Edit

Any file, not just text files, can be viewed in Edit. Just hold down Shift and double-click on the file icon.

Pathnames

The full pathname of a file or directory appears in the title bar at the top of the file window or directory display:

The pathname of a file or directory is a complete description of where the file or directory is located in the filing system structure of a particular storage device.

Usually on the RISC OS desktop you can refer to a file or directory by selecting it, or by giving its name (in an icon, for example)

Occasionally, however, you need to specify all or part of the sequence of directories that leads to it. The route down the directory tree is called a *path*, so the whole sequence, including the filename at the end, is called a *pathname*. At its most general, a pathname has the following form:

filing-system`::`*disc-name*`.`*directory-names*`.`*filename*

For example:

```
adfs::Work.$.letters.replies.ToBill
```

So in this example:

- `adfs` is the filing system name (the Advanced Disc Filing System). Note that it is followed by a colon. If the filing system name is omitted from a pathname, the current filing system is used. On a network the syntax is slightly different; the filing system name is followed by the network number or name.
- `Work` is the name of the disc. It may be a hard disc or a floppy disc. The disc may be in the floppy disc drive or not; the filing system will ask you to put the disc in the drive if it needs it. It is preceded by a second colon; if you omit the whole disc name, the current disc is used.
- `$` is the name given to the 'root' directory. This is usually the directory you first open when you click on a storage device icon – the structure of directories and files on a particular storage device grows out of that first directory.

  The exceptions to this are network file servers, where the directory display you first open will normally be your user directory, which is one or more directories removed from the root.

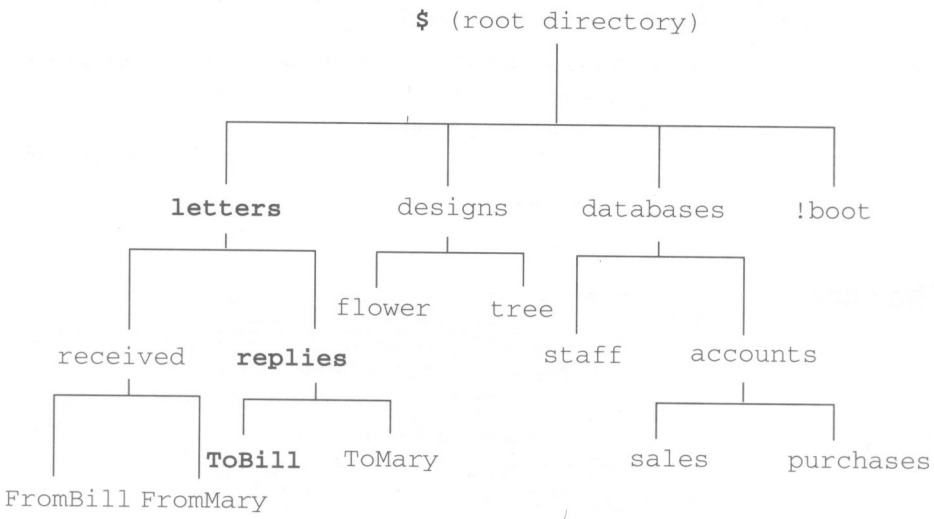
  If this, and the filing system name and disc name are omitted, the path is taken relative to the current directory.
- `letters` is the name of a directory contained within the root directory.
- `replies` is the name of a directory contained within the `letters` directory.
- `ToBill` is the name of a file within the `replies` directory.

  Each of the directory names in the path from the root onwards is separated from the next element of the path by a full stop.

Current filing system concept

The concepts of current filing system, current disc and current directory are more applicable to *Command Line Mode* than to the desktop; however, they do still apply when using the desktop. See the chapter entitled *Accessing the command line* on page 127 for information about the command line interface.

A graphical way of representing the filing system structure containing the file `ToBill` would be:



Application directories

A special sort of directory is used to contain application programs and the resources they use; logically enough, these are called application directories. They contain not only the application program itself, but other files needed to run it. Application directories have a name starting with an exclamation mark.

In general, you won't need to know about the internals of application directories. One point that you may notice, however, is that directory displays for discs and directories that contain applications take longer to appear on the screen than other directory displays. This is because the icons that are used to represent applications and the files they work on are loaded from special files in the application directories. Once the icons have been loaded, the computer does not need to load them again, but the more icons you load, the less workspace will be left for you to use. To check on how the computer is using its memory, see the chapter entitled *Fine tuning the configuration* on page 103.

To run an application

If you double-click on an icon other than a directory icon, the effect is to load and/or execute the associated file: a text file, for example, will be loaded into Edit, and an application will run. See the chapter *Loading and saving files* in the *Welcome Guide* for more details.

Clicking or double-clicking on the name next to an icon in a directory display has the same effect as clicking or double-clicking on the icon itself.

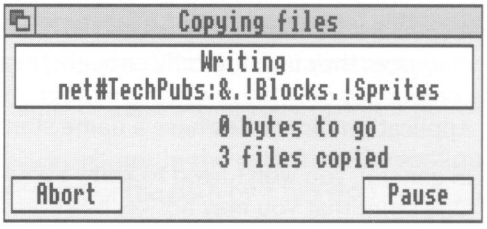
Opening an application directory

Unlike normal directories, double clicking on an Application directory will execute the application program. If you want to **open** an application directory, rather than execute it, hold down Shift and double-click on its icon.

Unless stated otherwise, references to directories in the rest of this chapter also apply to applications.

The Filer

As mentioned in the introduction to this chapter, the Filer provides the desktop interface between you and the filing system. It not only lets you carry out the basic filing operations mentioned in the *Welcome Guide*, plus many more, but also allows you to do so between **different** filing systems. You can open directory displays for several filing systems on your desktop, then, for example, copy files between your floppy disc drive and an Econet network (if you are connected to one), then delete a file on your RAM 'disc', and move files from your RAM disc to your floppy disc. All these actions are controlled by the Filer.



Filer operations normally run 'in the background', so that you can carry out other desktop activities while copying, searching, deleting, and so on, proceed. However, if your computer is running short of memory (if you have several applications running, for instance), the Filer may not be able to continue in the background and will have to suspend other activities while it completes its tasks. You can tell that this has happened by the fact that the normal message boxes that appear if you have the **Verbose** option set are replaced by larger, simpler, windows. You must then wait until the Filer has finished before doing anything else. For information on the **Verbose** option, see page 13.

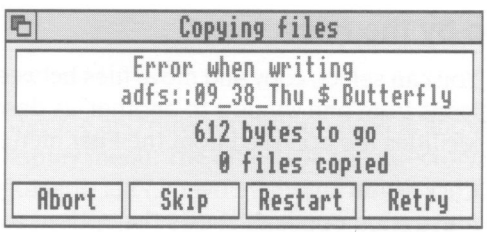
You can, of course, run several filer operations simultaneously. However you should not run two or more operations on the same files at the same time.

Operations on directories

Some operations, such as copying and deleting, when applied to a directory, will also be applied to all objects within a directory. If any of those objects are themselves directories, the operation will apply to their contents as well (and so on). Moving an application, for example, will move all of it: its directory and all its contents.

Correcting Filer problems

If a problem arises during a file operation, you will see an error box displayed with the following options:



- **Abort** lets you cancel the file operation completely.
- **Skip** skips the current file operation and starts afresh on the next file.
- **Restart** starts the file operation again from the beginning.
- **Retry** tries to start the file operation again from the place at which the error occurred.

Once the problem that caused the error has been cleared, you will find that Retry will normally continue with the file operation.

Selecting files and directories

Before you can carry out a filing system operation, you must indicate which object or objects you wish to apply it to. There are several ways of doing this:

- To choose a single object, click Select on it.
- To choose a group of objects, click Select or Adjust on the first one, and Adjust on each of the others in turn. If the objects are conveniently placed, you can also choose them by using the mouse and pointer to drag a box round them. To do this, move the pointer to one corner of the group of objects (not over an icon) and drag to the opposite corner; then release the mouse button. You can use Adjust to deselect icons too.
- To select all objects in a directory display choose **Select all** from the Filer menu.

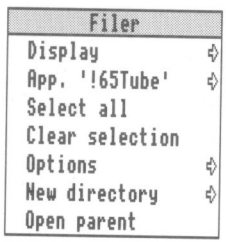
The selected objects are shown highlighted. After the operation, the objects are deselected.

To deselect an object by hand, click Adjust on it. The entire group of selected objects in a directory display may be deselected by choosing **Clear selection** from the Filer menu, or by clicking when the pointer is clear of any objects.

If there are no objects selected when you click Menu in a directory display, and the mouse pointer is over an object, that object will be selected before the menu appears.

See the *Welcome Guide* for basic details about selecting, copying and moving.

Facilities offered by the Filer



You can select, copy and move files between directory displays just by dragging file icons from one window to another, as described in the *Welcome Guide*. Other Filer facilities are accessed from the Filer menu.

Click **Menu** anywhere over a Filer directory display to show the Filer menu. The illustration opposite shows the options available from the main Filer menu. See the chapter entitled *Menus* in the *Welcome Guide* for information on how to choose from menus.

If an operation is shown in grey on the menu, it is not available at that point, and you will not be able to choose it.

The table below shows which main menu options to choose to carry out different tasks with the Filer. The main menu options are then described in turn:

Task	Choose
Change the access on a file or directory	File*
Change the default options on Filer actions	Options
Copy	File*†
Create a new directory	New directory
Delete a file or directory	File*
Deselect all icons which have been selected	Clear selection
Display files & directories in different ways	Display
Ensure confirmation of file actions	Options
Find a file or directory	File*
Get information on a file or directory	File*
Learn the size of a file or directory	File* or Display
Open the parent directory	Open parent
Rename a file or directory	File*

Task	Choose
Select all icons in a directory display	Select all
Set a file type	File*
Change the time stamp on a file	File*

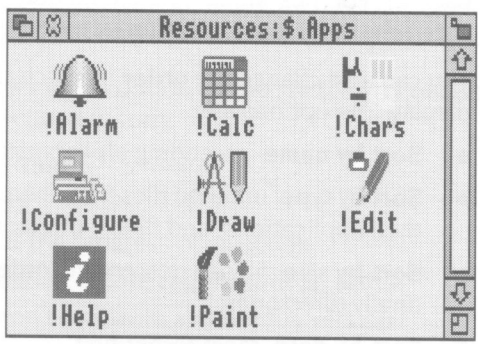
*Only available if you first select (or click on Menu over) the file or directory you want to apply it to (see **File** below). **File** will change to **Dir.** if you select a directory, **App.** if you select an application, or **Selection** if you select more than one file.

† Files and directories can also be **copied** merely by dragging their icons from one directory display to another. Additionally they can be **moved** by holding down Shift while dragging their icons from one directory display to another. See the *Welcome Guide* for more details.

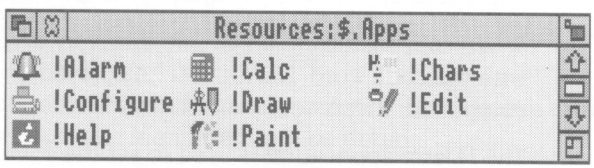
Display

You can change the way file and directory information is shown in directory displays using the **Display** menu. The objects in the directory can be displayed as:

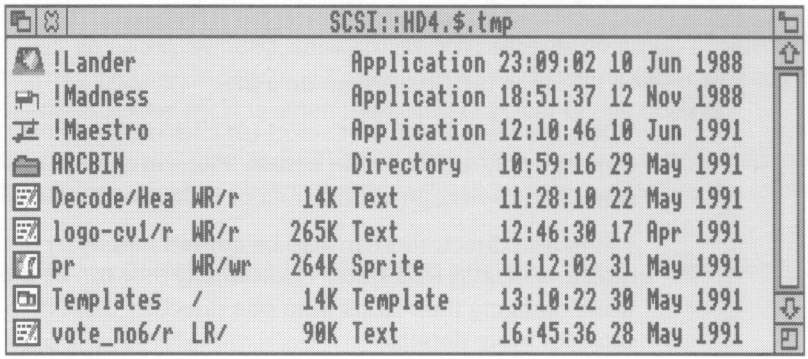
- **Large icons**:



- **Small icons**:



- **Full info**:


SCSI::HD4.$.tmp
!Lander Application 23:09:02 10 Jun 1988
!Madness Application 18:51:37 12 Nov 1988
!Maestro Application 12:10:46 10 Jun 1991
ARCBIN Directory 10:59:16 29 May 1991
Decode/Hea WR/r 14K Text 11:28:10 22 May 1991
logo-cv1/r WR/r 265K Text 12:46:30 17 Apr 1991
pr WR/wr 264K Sprite 11:12:02 31 May 1991
Templates / 14K Template 13:10:22 30 May 1991
vote_no6/r LR/ 90K Text 16:45:36 28 May 1991

Full info consists of a small icon, followed by a number of attributes. The letters following the file or directory name indicate owner access when they occur before the /, and public access after the /. For how to interpret the access information, refer to *Access* on page 19. File sizes are shown in bytes and kilobytes – for more information on displaying the sizes of files and directories, see **Count** and **Info** on page 21. For files which have a load and execute address, rather than a type and a date/time entry, the load address precedes the execute address in the display.

You can also change the **order** in which the objects are shown in the directory display. The options are:

- **Sort by name**: ascending alphabetical order. This is the default option.
- **Sort by type**: undated files first, then dated files in numerical order of file type, then applications, and finally directories.
- **Sort by size**: files in descending order of size first, then applications and finally directories.
- **Sort by date**: most recent first.

When you change the format for a directory display, the same format will be applied to any directory displays you open afterwards.

When copying files to a Full info directory display you will see blank icons appear with the code word 'DEADDEAD' displayed on the line. When the file copying is completed, these words and the blank icon, are replaced by the copied file.

The !Alarm application is used to set the computer's time and date.

File (or Dir. or App. or Selection)

File is the main menu tree in the Filer, enabling you to carry out many different operations on files and directories. Because of its size, it is described at the end of this chapter, starting on page 16.

Select all

Choose **Select all** to select all the files and directories in a directory display, so that you can copy or move them into another directory display (by dragging) if you want to, or perform one of the operations listed in the **Selection** menu.

Use the **Adjust** mouse button to deselect individual objects. See also *Selecting files and directories* on *page* 9.

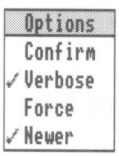
Clear selection

Choose **Clear selection** to deselect all the icons already selected in a directory display.

See also **Select all** above, and *Selecting files and directories* on *page* 9.

Options

You can set four options to provide finer control over most of the filing system operations invoked from the **File** menu described above. These are set using the **Options** menu. When an option is on, its menu entry is ticked.



Like **Display**, the options apply to all directory displays, rather than just the one from which they were set.

The table below shows which option to choose to carry out a particular task. The options are then described in turn:

Task	Choose
Override file locks	Force
Be advised about the progress of an action	Verbose
Request confirmation before carrying out an action	Confirm
Make sure you don't overwrite a newer file version	Newer

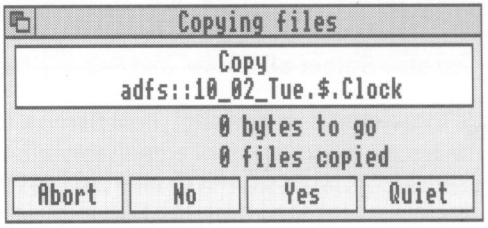
Confirm

The Confirm option causes the operation to ask you whether you really want to apply the operation before applying it to each object. This helps safeguard against the accidental deletion of files, for example.

The Confirm option is off by default, but to switch it on, choose **Confirm**. When the Confirm option is set, the menu item will be ticked.

When you have chosen **Confirm**, a window will appear asking whether you want to apply the operation in question to each object in turn. In reply, you can click one of the following:

- **Abort** to abandon the entire operation.
- **No** to skip the present object and go to the next one.
- **Yes** to carry out the operation on the present object and go to the next one.
- **Quiet** to continue with the operation without asking for further confirmation (in cases where the operation affects more than one object).



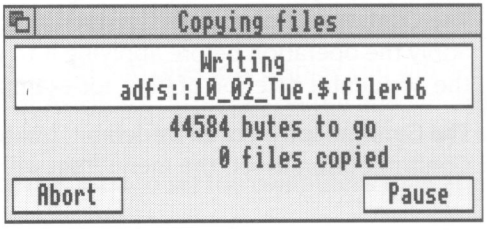
Verbose

The Verbose option tells you about the progress of an operation. By default, it is switched on.

The information about the operation will be displayed in a dialogue box. Click on:

- **Abort** to abandon the entire operation.
- **Pause** to interrupt it temporarily. The box will change to **Continue**. Click on **Continue** to proceed with the operation, or on **Abort** to stop.

Verbose often tells you useful information about Filer actions, so it is worthwhile leaving switched on.



Force

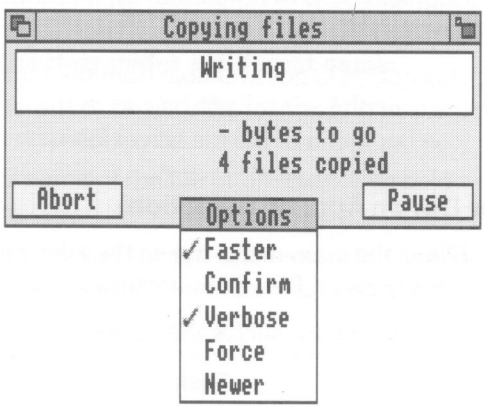
The Force option, when switched on, enables you to delete files and directories even if they are locked. This is particularly useful if you want to delete a directory containing a lot of files, some of which may be locked. However, this option should be used with great care, as it overrides all file protection (see page 19). It is off by default.

Newer

The Newer option applies only to copying, and is designed to ensure that you don't overwrite a file by an older version of the same file. If you set out to copy a file to a directory where there is already a file of that name, the file will only be copied if it is newer than the file in the destination directory. The option is off by default.

Going faster

If you have chosen the Verbose option, you can click Menu on any of the standard Filer dialogue boxes, such as those you get with copying, finding, deleting and moving. You will then be able to choose the **Faster** option.



This option makes file operations faster, at the expense of the appearance of the desktop. Normally during file operations, keeping the look of the desktop up-to-date takes priority over speed. If you choose the Faster option, speed takes priority and files and windows are not updated.

The Faster option only lasts for the current filing option; as soon as it is finished the desktop is updated to show any changes that have taken place.

New directory

To create a new directory:

1 Open a directory display for the directory in which you want the new directory to reside.

2 Go to the **New directory** writable icon. If necessary, delete the name already in the box; a quick way of doing this is to press Ctrl-U. Type in the name you want for the new directory and click on the name or press Return. See page 17 for information on valid names.

Users of earlier Acorn operating systems should note that new directories are **not** locked by default when you create them.

Open parent

If a directory contains a subdirectory, then it is the 'parent' of that subdirectory. Opening the parent therefore takes you up one 'level' in the filing system tree.

To open the parent of a directory, choose **Open parent**.

Another way is to hold down Shift and click Adjust on the Close icon of the directory display.

This option is not available from the root directory, nor is it, less obviously, from the user directory of a file server. In the latter case, you should use **Open $** from the icon bar menu of the file server icon.

File (or Dir. or App. or Selection)

File is the main menu tree in the Filer, enabling you to carry out many different operations on files and directories.

The table below shows the submenus to choose to carry out specific tasks:

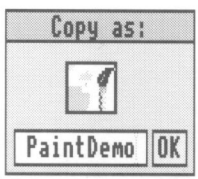
Task	Choose
Change the access on a file or directory	Access
Copy a file or directory	Copy
Copy a file or directory and change the name	Copy
Delete a file or directory	Delete
Find a file or directory	Find
Get information on a file or directory	Info
Find out how large is a file or directory	Count
Change the name of a file or directory	Rename
Set a file type	Set type
Change the time stamp on a file	Stamp

The **File** menu item applies to specific files and directories, and so is only available if you first Select the file or directory you want to apply it to. The name of the file or directory will then be incorporated in the menu item – if you select a file called 'Tornado', for example, the menu item will change to **File 'Tornado'.**

You can also put the name of the file or directory in the menu if you move the pointer over an icon and press Menu.

The description will also change, from **File** to **App.** or **Dir.**, if the object selected is an application or directory respectively. If more than one object is selected, the description will change to **Selection**, although not all the submenu options are available when a number of files have been selected.

Copy



The *Welcome Guide* explains the easiest and simplest way of copying – by dragging icons from one directory display to another (from the source directory to the destination directory). The **Copy** option additionally allows you to change the name of the file or directory as you make the copy, so that you can either copy it under a different name to the destination directory, or back into the source directory, so that you can have two copies of the same file, with different names.

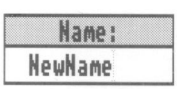
To copy a file or directory under a different name:

1 Select the file or directory, and display the **File/Copy** menu option. The **Copy as** box is displayed.

2 Type in the new name of the file or directory. See below for information on valid file names.

3 Click on **OK** for a copy of the file or directory to be made in the source directory, under the new name you have just supplied. To move the copy into a different directory, drag the icon (above the file name) into the destination directory. A copy of the file or directory will appear there, under its new name.

Rename



To rename a file or directory:

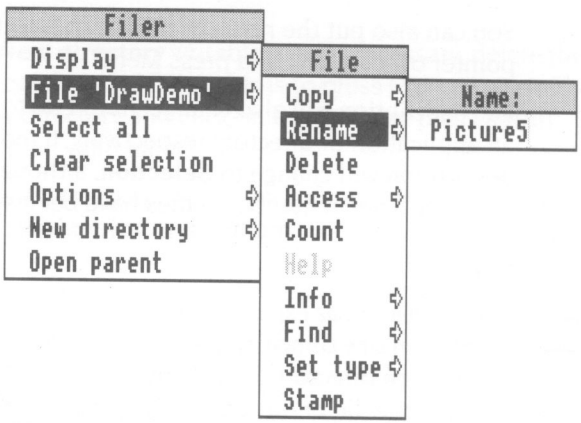
1 Select the file or directory, and from the **Filer** menu go to the **Rename** menu option and display the **Name** box.

2 Use the Delete key to erase the existing name and then type in the new name of the file or directory.

A filename must contain at least one, and at most ten, printing characters, except space and the following:

$ & % @ \ ^ : . # * " |

Upper- and lower-case letters are treated as equivalents in filenames. Thus, although a file may be stored under the name Fruit, you can refer to it as (for example) Fruit, fruit, FRUIT, FruiT, and so on.



3 Click on the new name, or press Return. The new name will appear in the directory display.

Take care if you are using the NFS Filer (in the TCP/IP Protocol Suite). This filer **is** case-sensitive since it displays files stored on other types of computer.

Delete

To delete a file or directory:

Select the file or directory, and from the **Filer** menu, choose the **Delete** menu option. The file or directory will be deleted from the directory.

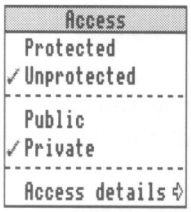
Warning: Make sure you really want to delete the file. After deletion the file cannot be recovered.

You may not be able to delete a file or directory if it has been locked. This is set from the **Access** submenu. You can override a file lock by choosing **Force** from the **Options** menu. This should be used with caution!

You can delete more than one file or directory at a time.

You can select more than one object in a directory display for deletion at the same time by using **Select all**, clicking on several objects with Adjust, or highlighting a block of them. See page 9 for more information.

Access



Access to files and directories means **who** is permitted to do **what** to them. The **who** is either you or anyone else; the **what** is read, write to or delete the files and directories. This is of particular interest when your computer is connected to a network.

You can control access to files and directories in two ways: one relatively simple way, and a second way that requires a slightly greater understanding of how access is set. The simple way is as follows:

1 Select the file or directory.

2 Go to the **File/Access** submenu. If you have selected only one object, there will be a tick alongside either **Protected** or **Unprotected**, and one alongside either **Private** or **Public**. If you have selected more than one object, none of the options will be ticked. The meaning of these options is as follows:

- **Protected**: the file or directory cannot be deleted or altered (by anyone). This is a good way of preventing damage to files you have finished working on. However the Force option (see page 15), overrides any protection you may have set (unless the file is stored on a network server with different ownership).
- **Unprotected:** it can be deleted or altered by anyone.
- **Public**: it can be read by other users on a network (this is irrelevant if you are not using a network, but it is convenient for when you copy objects to a network, since this property will be preserved).
- **Private**: it can be read by no-one but yourself.

By default, objects are **Unprotected**, but **Private** – this means that you can read and alter them, but no one else can.

3 Select which of these access parameters you want to set for the selected file or directory.

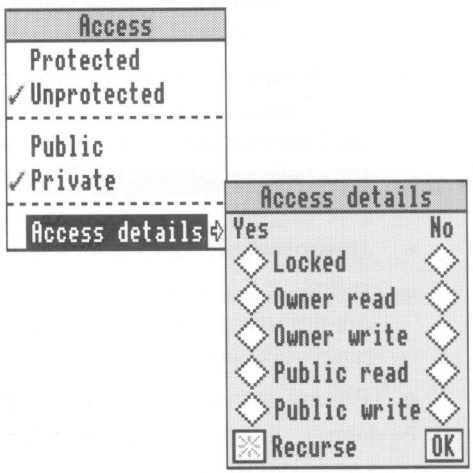
If you change the access details of a directory, it affects the access details of all the files contained in the directory.

Access details

The simple form of access just described is likely to be all that most people need, most of the time. However, you can also set access in a more detailed way that corresponds more closely with the way the computer understands it. To do this, move to the **Access details** option and display its dialogue box

Each of these five options relates directly to one of the five access flags which form part of the properties of a file or directory. The last two come into play only when the object is stored on a network. When each flag is set:

- **Locked** means that the object cannot be deleted. By default, this flag is clear (ie not set).
- **Owner read** means that the file's owner can read the file (for example, by loading it into an editor). By default, this flag is set.
- **Owner write** means that the file's owner can write to the file (ie, can change it and save it in the same place with the same name). By default, this flag is also set.
- **Public read** means that other network users can load your files or run an application in your network space. By default, this flag is clear.
- **Public write** means that other network users can write to the file. By default, this flag is also clear.



Click on the appropriate diamonds for the object(s) you have selected; click on **Yes** to set a flag, and on **No** to clear it. A green blob will appear when you do this; if you change your mind, you can remove it by clicking on it with Adjust. To apply the change to the contents of directories you have selected (and their contents, if any, and so on), click in the **Recurse** box so that a star appears. When you are ready, click on **OK**.

The two ways of setting access relate to each other as follows:

- If a file is **Protected**, its lock flag is set and its owner write flag is clear.
- If a file is **Public**, its public read flag is set.
- The owner read and public write flags can only be set using the **Access details** dialogue box.

If you select a directory, the access details are not set. If you then set any access details they will affect all of the files within that directory.

If you use a Level 4 file server, you should make sure that you do not set directories to Locked. This is because the Locked option makes directories invisible to other users on the network.

Count

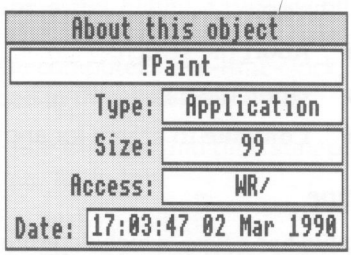
Choosing **Count** will display the number of files selected and their total size in bytes.

Help

Choosing **Help** will display a help file for the selected application. This option is greyed out if the application does not have a help file, or if the selection is a file or directory.

Info

Choose **Info** to display the file type, size, access details and date last modified – information similar to that shown when you choose **Full Info** from the **Display** menu.



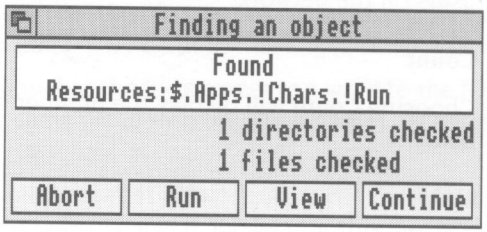
Find

You may believe that you have saved a file or directory somewhere in a directory structure, but are unable to remember where. **Find** enables you to do so.

To find an object:

1. Select the directory or directories you want to search.
2. Display the **Directory/** (or **Selection/** if you have selected more than one) **Find** writable icon.
3. Type in the name of the file you want to find. Click on the name, or press Return.

As the search proceeds, a box is displayed showing its progress through the directory structure you have specified.



If the object found is a **file**, the box gives you the following options:

- **Abort** the search.
- **Run** the file: if the file is a program, it will be run; if it is a document, it will be loaded into an appropriate editor (if one can be found).
- **View** the directory containing the file.
- **Continue** to search for another object with the same name.

If the object found is a **directory**, you will see the following options:

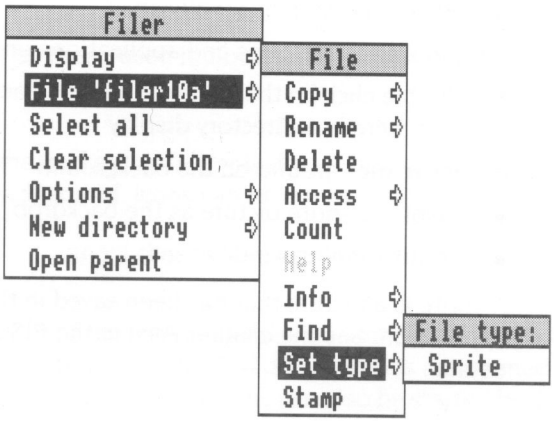
- **Abort** the search.
- **Open** the directory.
- **Continue** to search for another object with the same name.

Set type

Every file has a type, which determines what will happen when you double-click on its icon. Thus files of the type Text will be loaded into Edit, files of the type Obey are interpreted as lists of commands to be carried out, and so on.

To change a file's type:

1. Select the file whose type you want to change.
2. Display the **Set type** name box.
3. Type the name of the file type you want, in normal text or as a hexadecimal number. For a list of file types, refer to the appendix entitled RISC OS *file types* on page 225.



Stamp

Files record when they were last altered, and directories when they were first created. This information is shown when you display **Full Info**, or when you select a specific file or directory and ask for **Info** about it (see above). The time and date used is that provided by the computer's real-time clock, which can be set using the Alarm application described in the *Applications Guide*.

Stamp enables you to update the date and time stamping on files and directories to the current date and time. To do this:

1 Select the object(s) you wish to stamp.

2 Choose **Stamp** from the **File** (**Directory** or **Application**) subdirectory. The date stamp will be updated. You can check this using the **Info** menu option.

Using the desktop background

So far this chapter has shown you how to use the Filer to manipulate your files, directories and applications. This section shows you how you can add another layer to the Filer by using **Pinboard**. You might have found out about Pinboard already, if you accidentally dragged an icon onto the screen background.

Pinboard

Without using Pinboard, the computer screen just shows the icon bar, one or two directory windows and maybe an application such as Edit. These windows sit on the screen background, which is normally a grey tint.

With Pinboard, the screen background is transformed into just that, a pinboard on which you can pin icons. You can

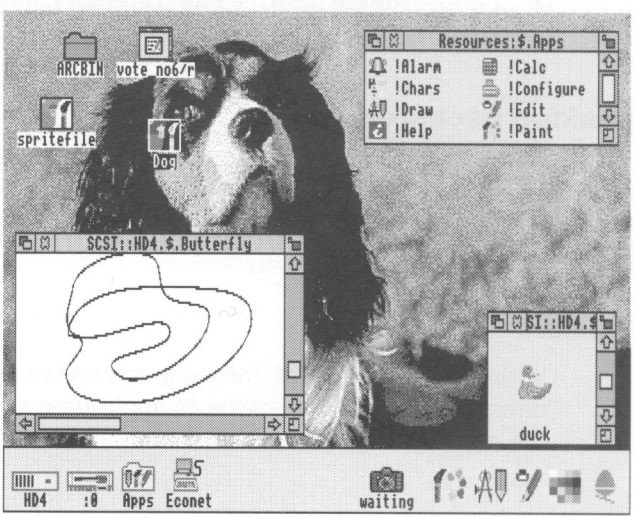
- pin files, directories and applications on the background
- double click on these pinned items to activate them just as you would do if they were in a directory display
- move files around on the background
- display a sprite picture as the backdrop
- shrink running windows into icons.

A sprite is a picture that has been saved in the format used by the Paint application. See the chapter *Paint* in the RISC OS 3 *Applications Guide* for more details.

How Pinboard works

Using Pinboard is very easy:

- Pin a file, directory or application onto the Pinboard by dragging its icon onto the grey background of the screen. You can still use the file in exactly the same way as you always have.
- Iconise a currently open window by holding down the Shift key and clicking on the Close icon. Any window with a Close icon can be iconised. Open these windows by double-clicking on them.
- Display a sprite as a backdrop (instead of the usual grey) by dragging a Sprite file onto the Pinboard and then Choosing **Make backdrop** from the Pinboard menu (Click Menu over the sprite icon).



File manipulations using icons on the background

This section shows you how to use icons on the background. The techniques used are much the same as those used in normal file manipulations.

Dragging

To put an icon on the background, simply drag it from a directory and drop it anywhere on the background. Icons can be moved around the background in a similar way.

Double clicking

Double clicking on any of the icons has the standard effect. Files are loaded into their respective applications and displayed. Directories are opened and displayed. Applications are started. Application icons can also be started by dragging them to the icon bar.

Copying

Icons dragged from the background to a directory display are copied to the new directory. However files cannot be moved from the background (using shift-drag) to an alternative directory.

Iconising running applications

Pinboard allows you to iconise a running application's windows, that is to say, shrink a currently open window into an icon. Any window that has a Close icon can be iconised. For instance, you may have a file that you are editing that you want to set aside for a while; you can choose to iconise this Edit window. Iconised application windows are distinguished by having an icon enclosed by scroll bars.

By iconising application windows, you can keep many windows active on your desktop at the same time, without the problem of filling up your screen with unwanted windows.

How to iconise a running window

Any window that has a Close icon can be iconised by holding down the shift key and clicking on the Close icon.

Iconised windows can be redisplayed simply by double-clicking on them.

Displaying the Pinboard menu options

Like most RISC OS applications, Pinboard is controlled from a menu. To display the menu options, press Menu anywhere on the background. To see the options available for a particular icon on the background, click on the icon and press Menu; or press Menu over the icon when there is no other selection.

Use the following table to decide which menu option you need to carry out a particular task:

Task	Option
Tidy all icons into rows	Tidy
Do not allow icons to overlap	Grid lock
Remove a selected icon from the pinboard	Remove icon
Remove several selected icons	Remove selection
Select all the icons on the pinboard	Select all
Deselect icons	Clear selection
Use a sprite as a backdrop	Make backdrop
Remove a backdrop	Remove backdrop

The Remove option does not in any way delete your files. It simply removes the icon from the Pinboard display.

Tidy

Click on **Tidy** and all of the background icons will line up neatly from left to right along the top of your screen.

Grid lock

The **Grid lock** option ensures that icons do not overlap each other. Icons will line up on an invisible grid on the screen. If you want to be able to place your icons anywhere, make sure that this option is not ticked.

Remove icon/ Remove selection/ Close window

If you press Menu over an icon, you can remove it by clicking on **Remove icon**. You can also use this with the **Select all** option to remove all the icons. Removing an icon from the background does not delete it from your disc.

You can also use the Adjust button to select several icons and then use the **Remove selection** option.

You cannot remove iconised windows in this way since these iconised windows may contain data that you are currently changing. Iconised windows must be double-clicked on and then closed using the Close icon.

Select all/ Clear selection

Select all selects all icons on the pinboard (apart from iconised application windows). **Clear selection** deselects all icons on the pinboard.

Make backdrop

One of the prettier uses of the pinboard is to display a picture as a backdrop. You can display any Sprite file (as produced by Paint for example). The sprite is automatically resized so that it occupies the whole of the backdrop. For best results, 256 colour pictures should be displayed using one of the 256 colour screen modes, such as mode 15. However, they can be displayed in any mode.

To display a picture, drag the sprite file onto the backdrop and click menu over it; then click on **Make backdrop**.

Make backdrop also has a submenu for finer control of backdrop pictures:

Scaled has the same effect as clicking on **Make backdrop**. A sprite is scaled to fill the whole screen.

Centred has the effect of centring a sprite on the backdrop. The desktop retains the correct proportions of the sprite.

Tiled will take a sprite and tile it so that it fills your screen; try it and see.

Remove backdrop

You can remove a backdrop picture by clicking on **Remove backdrop**.

Save

Save allows you to save your Pinboard configuration to a file. Double-clicking on this file will restore Pinboard to its saved state. The Pinboard configuration is also saved with a Desktop save.

Iconised application menu options

If you press Menu when the pointer is over an iconised application window, you will see the standard Pinboard options. However if you hold down Shift and press Menu you will display the menu options associated with the running application's windows.

A menu may not appear if the window that was iconised did not allow menuing at the edge of its window, or if the window did not use menus at all.

Saving the pinboard configuration

!Boot

Saving a Desktop boot file will save the exact configuration (including all the icons and the backdrop) of your Pinboard. However it does not desktop save the positions of running iconised application windows.

For more information about Desktop boot files, see the chapter entitled *Desktop boot files* on page 109.

Pinboard display characteristics

Information about Pinboard can be saved in the Desktop boot file. Desktop boot files are created using the Desktop boot option in the Task manager menu.

You can also edit your Desktop boot file by hand. Add one or more of the following lines to the file:

`Pinboard`	Starts the Pinboard with grid lock.
`Pinboard -Grid`	Starts the Pinboard without grid lock.
`Backdrop` *`filename`*	Gives the filename of the sprite to be used as a Pinboard backdrop, for example: `Backdrop adfs::4.$.alfalfa` Makes a backdrop by displaying the sprite `alfalfa`.
`Backdrop` *`filename -Scale`*	Scales the sprite so that the Pinboard covers the backdrop completely.

`Backdrop` *`filename`* `-Centre`	Centres the sprite so that it keeps its proportions.
`Backdrop` *`filename`* `-Tile`	Tiles the sprite so that the Pinboard is covered with many copies of the sprite.
`Pin` *`filename position`*	Gives the position of an icon on the Pinboard, for example: `Pin Resources:$.Apps.!Configure 350 500` Puts the !Configure icon on the background at position 550 500 (given in OS units).

2 Discs, networks and filing systems

In the last chapter we mentioned that RISC OS provides and supports a number of different filing systems, which have been designed to suit the type of storage device on which they are found. The main filing systems are:

filing system	used on
ADFS (or SCSIFS)	floppy discs, hard discs
NetFS	Econet file servers
RAMFS	RAM discs
ResourceFS	ROM

The RISC OS Filer (described in the previous chapter) gives a uniform user interface to all these filing systems, but there are a few special features provided with each one, which are described here. These are accessed from each storage device's icon bar menu (displayed by clicking Menu over it).

Floppy and hard discs

All computers are fitted with a floppy disc and some have a hard disc too. These discs usually use ADFS. The main exception to this would be a SCSI hard disc, fitted as an option along with a SCSI expansion card, and as standard on some machines. Click Menu over the hard disc icon on the icon bar, and the menu header will tell you whether the hard disc is ADFS or SCSI. The differences between ADFS and SCSIFS are not apparent on the desktop, so this section will be relevant to both filing systems. (Acorn SCSI discs come with their own documentation, the SCSI *User Guide*.)

Displaying the disc icon bar menu

Click Menu over the disc icon on the icon bar, and the disc menu will be displayed. This is the same for floppy and for hard discs, although **Format** and **Backup** are greyed out on hard disc menus.

The disc menu gives you access to the filing system tasks you may need to carry out using discs and disc drives (and hence additional to the general tasks controlled by the Filer, which are described in the previous chapter). These tasks are covered below.

Use the following table to decide which menu option you need to carry out a particular task:

Task	Option
Backup a floppy disc	Backup
Check a disc for defects	Verify
Check how much space is left on a disc	Free
Clear a disc's directory displays off the screen	Dismount
Close all the files on a disc	Dismount
Format a floppy disc*	Format
Park the heads of a hard disc	Dismount
Rename a disc	Name disc

*See *Format* on page 34 for information about formatting hard discs.

Name disc

Disc names

Floppy disc drives are identified by icons numbered :0 and (if a second floppy disc drive is fitted) :1. Hard disc drives are identified by icons numbered :4 and (if a second hard disc drive is fitted) :5, though if a hard disc has been given a name, the name will appear on the icon bar instead of the number.

Each disc may be referred to either by a name, or by the number of the drive on which it is mounted. The former method is recommended, since it means you do not have to worry about where the disc is: the filing system will prompt you to insert a disc if it is missing from the drive.

Disc names follow the same rules as file names. It is generally advisable to keep disc names unique, so that the filing system can tell them apart. When you set up a floppy disc for the first time, it is given a name based on the current date and time.

Setting and changing disc names

To set or change the name of a disc:

1 In the case of a floppy disc, ensure that the disc is formatted and is not write-protected, then insert it into the disc drive.

2 Move to **Name disc** on the icon bar menu for the disc drive.

3 Type in the name (it must be at least two characters long).

Press Return or click a mouse button. If you have any directory displays open for the disc, they will be closed when you rename the disc.

Dismount

Dismounting discs

When a floppy disc has been inserted into the computer, and its directory display is displayed, it can be said to be 'mounted'. When you have finished with a disc, it is useful to 'dismount' it. This closes all the files on the disc, removes its directory displays from the screen, and tells the computer to forget about it. To dismount a disc:

1 Insert the floppy disc into the disc drive (if it's not still in there).

2 Choose **Dismount** from the icon bar menu for the disc drive.

Dismounting a hard disc also parks its heads so that it can be moved safely once the computer has been turned off. The disc remains dismounted until the next time it is accessed, or until the machine is next switched on. It is good practice to dismount the disc before turning the computer off, even if it is not going to be moved. The **Shutdown** command also dismounts and parks the disc drive heads.

Using more than one floppy disc

You can of course use the same floppy disc drive for more than one disc. When you open the directory display of a floppy disc, the computer makes a note of its name, so that if the disc is not in the drive when the computer needs it, a dialogue box appears, prompting you to insert the disc. Insert the required disc into the drive. You may then need to click on **OK** to tell the computer the disc is there; this depends on the disc drive that has been used in your computer.

If you decide not to go through with the operation (for example, if the requested disc is not available), click on **Cancel**. The response to this will depend on the command or application that needed the disc; in general it results in the operation being cancelled. An error message may be displayed as well.

If you insert a disc that has the same name as one already in use, you will be asked if you want the computer to forget the earlier disc. If you do, click on **OK**; otherwise remove the new disc and click on **Cancel**. For these purposes, a disc is still 'in use' if, for example, there is a directory display open for it.

When you are copying from one floppy disc to another using a single drive (by dragging a group of objects), you may be asked to swap the discs occasionally, which becomes tedious when copying many files and directories. See the section entitled RAM *discs* on page 46 for information on how to do this faster.

Format

Formatting discs

Formatting a disc means setting up information on the disc about the way data is stored on it. You will need to format a disc in the following circumstances:

- To prepare a new, blank disc for use. (If you try to use a disc that has not been formatted, an error message will be displayed.)
- To erase the entire contents of a disc and bring it to a known, clean state.

  Warning: When a disc is formatted, any data that was previously stored on it is permanently lost.

To format a floppy disc:

1 If the disc is not already in the drive, insert it.

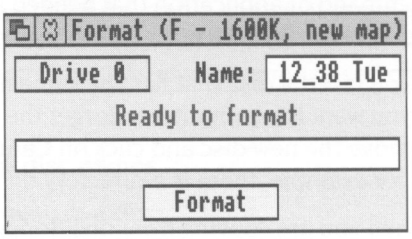
2 If the disc is not a new one, and a directory display for it is on the screen, dismount the disc by choosing **Dismount** from the icon bar menu.

3 Move to the **Format** submenu of the icon bar menu for the disc drive.

4 Choose the disc format.

Normally you will want to choose ADFS 800K (E) format (or 1.6M format if your computer uses high density floppy discs). The section *Choosing the disc format* overleaf describes all of the available disc formats in more detail.

5 The Format dialogue box is displayed. Click on **Format** to go ahead with the operation; click on the close icon to abandon the operation. During formatting and verifying, an indication of the progress of the operation will be displayed. You can interrupt the formatting process by clicking on **Pause**.



6 When formatting is complete you will see the message **Disc formatted OK**. Finish formatting by clicking on OK.

The Format dialogue box

In addition to formatting the disc, the Format dialogue box also lets you give the floppy disc a name.

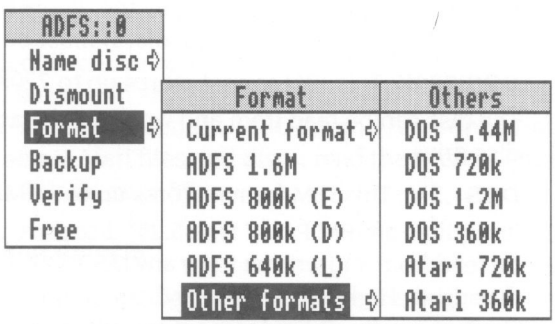
If you don't give a floppy disc a name, the default name given to the disc is based on the date and time: for example 11_27_Mon. If you want to give a disc a name, click over the **Name** box and type in the name. See page 32 for details of file and disc naming conventions.

Formatting a hard disc

Hard discs are supplied ready-formatted, and you should not need to reformat them. In the unlikely event that a hard disc does have to be reformatted, use the program **HForm**, described in the appendix entitled *Formatting a hard disc* on page 219.

Choosing the disc format

Formats are chosen from the Floppy disc icon bar menu. Display the format sub menu to the formatting options.



If you have a computer that does not support high density floppy discs, the ADFS 1.6M, DOS 1.44M and DOS 1.2M options will not appear in your menu.

There are four different ADFS RISC OS formats for floppy discs:

- **ADFS 1.6M**. This format can store 1.6MB of data.

  You can only use this format if your computer has a high density disc drive fitted (see the *Welcome Guide* for details). High density floppy discs (1.44MB IBM type discs) must be used. High density discs must only be formatted using ADFS 1.6M format. Each directory can contain up to 77 files and subdirectories.

- **ADFS 800K (E)**. This format can store approximately 800K of data.
  It is the best format for discs that do **not** need to be used on older versions of the operating system (pre-RISC OS 2.00). It should be used whenever possible (unless your computer has a high density disc drive, in which case use ADFS 1.6M format). Each directory can contain up to 77 files and subdirectories.
- **ADFS 800K (D)**. The format can store approximately 800K of data.
  This format is compatible with the Arthur 1.20 operating system. Each directory can contain up to 77 files and subdirectories.
- **ADFS 640K (L)**. The format can store approximately 640K of data.
  This format is compatible with ADFS on Arthur 1.20 and ADFS on the Master, Master Compact, BBC Model B and BBC Model B+ computers fitted with 3.5" disc drives. Each directory can contain up to 47 files and subdirectories.

There are four different DOS compatible formats for floppy discs:

- **DOS 1.44M**. This IBM format stores up to 1.44MB of data.
  The disc can be read from and written to by any MS-DOS computer with a high density 3.5" disc drive. You can only use this format if your computer has a high density disc drive fitted (see the *Welcome Guide* for details). High density floppy discs (1.44MB IBM type discs) must be used.
- **DOS 720K**. This IBM format stores up to 720K of data.
  The disc can be read from and written to by any MS-DOS computer with a 3.5" disc drive.
- **DOS1.2M**. This IBM format stores up to 1.2MB of data.
  It requires an IBM PC/AT type 5.25" disc drive attached externally. The disc can be read from and written to by any MS-DOS computer with a high density 5.25" disc drive. High density floppy discs (1.2MB IBM type discs) must be used. Contact your supplier for more information on using external 5.25" disc drives.
- **DOS 360K**. This IBM format stores up to 360K of data.
  It requires a standard 5.25" disc drive attached externally. The disc can be read from and written to by any MS-DOS computer with a 5.25" disc drive. Contact your supplier for more information on using external 5.25" disc drives.

There are two different Atari compatible formats for floppy discs:

- **Atari 720K**. This Atari format stores up to 720K of data.
  The disc can be read from and written to by any Atari ST computer with a double-sided 3.5" disc drive.
- **Atari 360K**. This Atari format stores up to 360K of data.
  The disc can be read from and written to by any Atari ST computer with a 3.5" disc drive.

Notes about formatting

When you are using ADFS 800K (D) and ADFS 640K (L) formats, you may occasionally need to 'compact' the disc. This is because the free space may become fragmented, making disc access slower and preventing large files from being saved. A message will appear on the screen when compaction is necessary. To compact your disc you use the *Compact command. For more information on *Compact, read the chapter entitled *Star command summaries* on page 157.

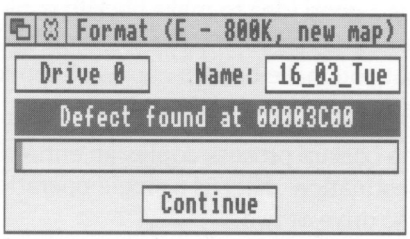
ADFS 800K (E) and ADFS 1.6M format discs never need compacting. These formats are also safer (more resistant to disc errors) in that the information which tells the computer where to find information on the disc, is held duplicated on the disc. However, because there is additional information stored on an 800K (E) format disc, there is slightly less space available, so it may not be possible to copy a completely full 800K (D) format disc to an 800K (E) format disc.

DOS-formatted discs can be used just like RISC OS format discs, and in addition they can also be used in any DOS computer with a suitable disc drive. This enables you to transfer files between the RISC OS and DOS operating systems. For more information about DOS files and discs, read the section entitled *Using DOS-formatted discs* on page 50.

Atari formatted discs can be used just like RISC OS format discs, and in addition they can also be used in any Atari computer with a suitable disc drive. This enables you to transfer files between the RISC OS and Atari operating systems. For more information about Atari files and discs, read the section entitled *Using Atari-formatted discs* on page 53.

Disc errors and defects

If your floppy disc has a defect in it, this defect is flagged during the formatting and verifying process. If this occurs, click on **Continue** so that the area of the disc in which the defect occurs is not used. If you don't want to continue with the format/verify process, click on the window's Close icon.

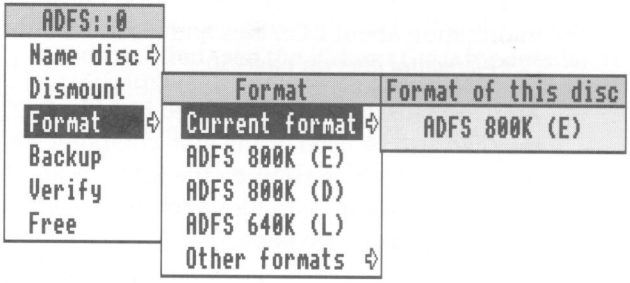


If a defect occurs with a floppy disc during its use (a rare occurrence) you will see a Disc error message. To correct the error you should copy any files you want to save on the affected disc onto another disc, and then reformat the affected disc. Formatting the disc will 'map out' the defect and the disc can then be used again.

If you do not wish to reformat your floppy disc, a defect can be mapped out using the *Defect command. See the chapter entitled *Star command summaries* on page 157 for more details. If you get continual disc errors on a floppy disc, the disc may be defective and you should no longer use it.

Current format

If you want to find out what type of format a floppy disc has, put the floppy disc in the disc drive and, from the **Format** menu, display the **Current format** box. This will tell you the format type and storage capacity of the floppy disc.



Backup

It is a good idea to make backup copies of floppy discs from time to time, in case a disc is damaged or a file is accidentally deleted. In addition, it is recommended that you make backup copies of applications supplied on discs, and use the backups as your working discs.

The backup process copies an entire floppy disc (from the 'source' disc to the 'destination' disc) as a single operation, and can be done using either one floppy disc drive or two.

Warning: Backing up a disc deletes the entire previous contents of the destination disc.

If the destination disc is a new, blank disc, it must be formatted first (see *Format* above).

The destination disc will be given the same name as the source disc.

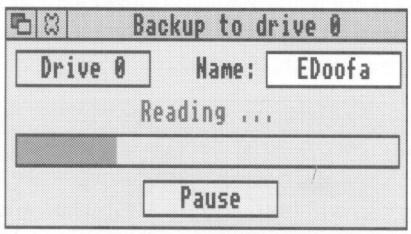
You cannot back up from a D or E format to an L format disc, nor from an L to a D or E format disc. In general you should only back up onto discs with the same format as the source disc.

During a backup, you should, for safety, write-protect the source disc.

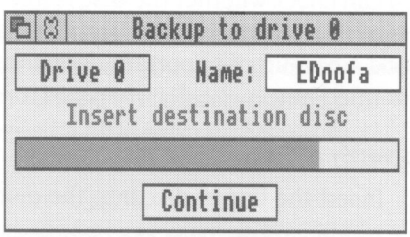
To back up using a single disc drive:

1 Choose **Backup** from the icon bar menu for the disc drive.

2 When prompted, insert the source disc into the disc drive and click on **OK**.



3 Similarly, when prompted, insert the destination disc, and click on **OK**. Repeat steps 2 and 3 as prompted until all of the data has been copied.



4 When the Backup has finished, click on the Close icon to conclude the operation.

To back up using two disc drives:

1 Insert the source disc into drive 1.

2 Insert the destination disc into drive 0.

3 Click Menu on the drive 1 icon and move to the **Backup** option, which now has a submenu: click on **to drive 0**. If you prefer, you can back up from drive 0 to drive 1 by inserting the source disc into drive 0, the destination disc into drive 1, and selecting **to drive 1**.

4 You will be asked whether you are sure you want to go ahead with the backup operation; click on **OK** to proceed.

5 When the Backup has finished, click on the Close icon to conclude the operation.

If you are using your computer a lot, it is good practice to back up the files you have been working on at least once a day, and to back up all your files once a week, or once a month.

Besides giving you some protection against hardware failures or discs becoming damaged, making backup copies also gives you a way of recovering files if you accidentally delete them or overwrite them. Naming discs with the date of the backup will help you find out when the backup was made, without having to check the date of the files on the disc.

Verify

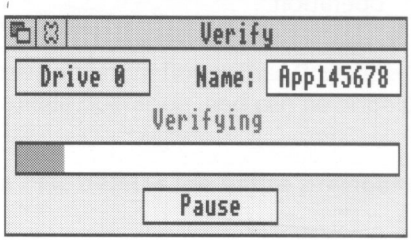
You can check whether the disc is free from defects by verifying the disc. This is not something you need to do very often, but is a good idea if, for example, you have made a backup of important data and want to check that it is stored safely. A disc is verified automatically when you format it.

To verify a disc:

1 Insert the floppy disc into the disc drive.

2 Choose **Verify** from the icon bar menu for the disc drive.

The Verify dialogue box is displayed and the verify starts.



If there are no faults on the disc, the message **Disc verified OK** appears. If there is a fault, the position of the error on the disc is displayed. Clicking on **Continue** maps out the error so that the bad part of the floppy disc is not used again.

A defect can be mapped out using the *Defect command. See the chapter entitled *Star command summaries* on page 157 for more details.

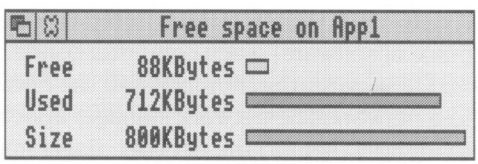
Free

To check how much free space is available on a disc:

1 Insert the floppy disc into the disc drive.

2 Choose **Free** from the icon bar menu for the disc drive.

The amount of free space on the disc, together with the amount of space that is in use, are shown in KBytes (Kilobytes). This window is updated whenever the space on the disc changes.



What to do if something goes wrong

Most errors and problems connected with discs are accompanied by self-explanatory messages. Often all you need to do is acknowledge that you have read the error message by clicking on the appropriate box. There are a few cases that are more serious or need a little extra explanation.

Protected disc

The message 'Protected disc' indicates that a floppy disc is write-protected. This prevents you from accidentally writing to the disc. You can remove the write protection by sliding the small tab at one corner of the disc so that the hole is blocked off.

Disc errors

Occasionally, a disc may become damaged. For example a defect may develop in the magnetic surface of the disc. In this case, you may see a message such as:

```
Disc error 10 at :0/00000400
```

If a lot of these errors occur, you are advised to reformat the disc, first copying any undamaged files to another disc. If the disc errors persist after reformatting, throw the disc away (or in the case of a hard disc, consult your supplier).

A similar error can occur if you try to use a disc that has not been formatted.

For a full explanation of all user-level error messages refer to the appendix entitled *Error messages* on page 243.

Econet file servers

Econet file servers use NetFS (the Network Filing System). This is only available if your computer is fitted with Econet hardware, and connected to an Econet network. This section describes the extra filing system features available that support NetFS, additional to those of the Filer covered in the previous chapter.

An introduction to Econet networks

A network is usually administered by a network manager (a person, rather than a piece of software). Each computer connected to a network (including the file server itself) has a station number, and the network manager can assign a network name to a network. The network manager allocates each network user a username, used to identify them to the network. Users may, if they wish, set a password, which prevents individuals from logging on under someone else's name.

Your computer can be configured to recognise a fileserver and printer server automatically, see the chapter entitled *Setting the configuration* on page 83 for more details.

Pathnames

The name used for NetFS in paths is `net`, optionally followed by a hash symbol (`#`), and the name and/or number of the file server; for example `net#0.254::Business` or `net#Business`.

Updating of network directory displays

If a file shown in a directory display on your screen is deleted by another user, your display will not be updated automatically. If you then try to open the deleted file, you will get a 'File not found' error message. You can update the display by closing the directory display and opening it again.

Displaying the Econet icon bar file server menu

To display the Econet (NetFS) 'File server' menu, click Menu on the Econet icon.

Use the following table to decide which menu option you need to carry out a particular task:

Task	Option
Check how much space is left on a disc	Free
Display a list of available file servers	FS list
Log off from a file server	Bye
Log on to an Econet file server	Logon
Open the root directory of the file server	Open $

FS list

To check which file servers are available, choose **FS list** from the File server menu. A list of file servers is shown in a window. **Full info**, reached via the Display menu in this window, shows the file server net address (a number) as well as its name.

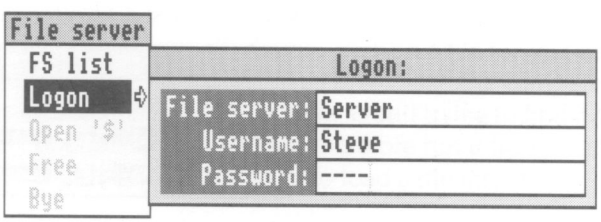
To log on to a file server from the file server list, click Select or Adjust on one of the file servers. The same dialogue box used in **Logon** below appears.

Logon

To log on to a network file server:

1 Move to the **Logon** submenu of the File server menu. Alternatively, click on the Econet icon.

2 Type in the name of the file server (this may already be set up), the username, and (if needed) the password. Press Return at the end of each of these.



If the file server is available, and the username and password are valid, a directory display for the user directory (the top-level directory in the user's own network file directory tree) is opened; otherwise an error message is displayed. When you have successfully logged on, the Econet icon on the icon bar changes (the text underneath the icon is the file server's number or disc name).

You can also log on from the file server list, as described above in **FS list**.

To log on **without** displaying the user directory, hold down Shift while you press Return for the last time when logging on; do not release Shift until the file server name or number appears underneath the Econet icon on the icon bar, indicating that you are logged on.

If your network manager has not allocated you a user directory, you will log onto the root directory of the fileserver instead.

You can, of course, log onto several file servers, an Econet icon is displayed on the icon bar for each file server.

Open $

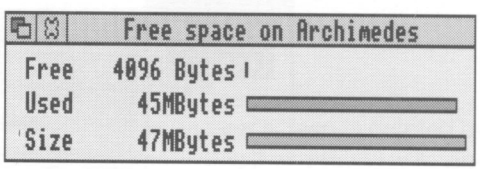
On a file server you log on to your user directory. This is one or more levels down from the root; unlike most other storage devices, where the first directory you open is the root directory, the user directory is sometimes referred to as the user root directory. Pathnames to the user root directory must begin with &.

You can open the root directory of the file server by choosing **Open $** from the File server menu. If the file server has more than one disc, the disc names will be displayed as a submenu; click on the disc whose root you want to display.

Access to areas, other than your user area, may be denied to you by the network manager.

Free

To check how much space is available on a file server, choose **Free** from the File server menu. This displays the free space on the file server. **Free** is the amount of space you have left in your user area. **Used** is the amount of space that has been used (by all users) on the file server. Size is the total size of the of the file server disc.



If you find that you are running out of space, ask your network manager to allocate you some more space.

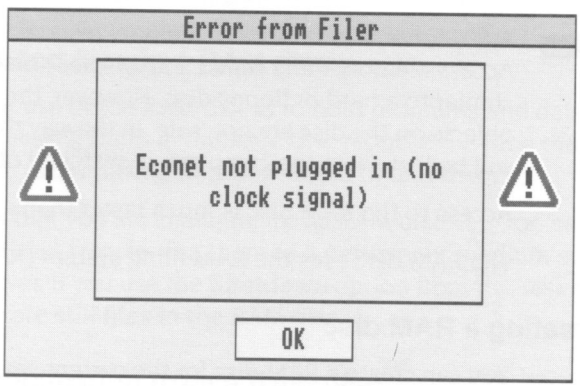
Bye

When you have finished using a file server, log off by choosing **Bye** from the file server menu. Any directory displays for the file server will be closed.

What to do if something goes wrong

'Econet not plugged in' error message

Probably the most frequent error encountered when attempting to log on to a network is 'Econet not plugged in'. This means that your machine is physically disconnected from the network, either at the back of the computer or at the socket box at the other end of the cable.



Newly-connected file servers

If a new file server has been connected to your network, it will not automatically appear on the FS list. To make it do so, log on to the new file server explicitly using the fileserver number (ask your network manager), and the next time you display the FS list, the new file server will be included.

Applications copied from a network

If you copy an application from the network, log off the network, and then (without first loading the application itself) double-click on a file for that application, you will see the message 'Not logged on'. This is because the computer, having 'seen' that the application came from the network, is still trying to find it there. When you have copied the application, you should therefore run it from your own disc (by double-clicking on it) before attempting to load a file into it.

Network failures

If there are any serious errors, such as damage to the disc of a file server, these should be handled by the network manager. The only error you are, in general, likely to meet when using the network is failure of the network itself, rather than the filing system. This can happen for a variety of reasons: both 'hard errors', such as the network becoming disconnected, and 'soft errors', such as the network

becoming jammed as a result of too many people using it at the same time. Most problems tend to be soft and can be cured by trying the operation again, or by logging on to the file server again.

For a full explanation of all of the common error messages you might encounter, turn to the appendix entitled *Error messages* on page 243.

RAM discs

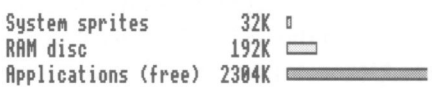
A RAM disc uses a block of memory reserved from the computer's RAM (Random Access Memory). It is called a RAM 'disc', because you can use it in a way very similar to a hard or floppy disc. However, the important thing to remember is that objects on the disc are not 'safe' in the way that objects on real discs are safe: they will be lost when the computer is switched off or reset.

Access to the RAM disc is much faster than access to a floppy or hard disc.

The RAM disc uses the RAM filing system (RAMFS).

Creating a RAM disc

You can create a RAM disc for the current session using the desktop Task Manager. The 'bar' is in the third section of the Task Manager window, marked **RAM Disc**. Press Select to the right of the **OK** label – at the point where the bar will start – and drag the bar that appears to the size you want.



You can change the size of the RAM disc after you have created it, but only if it is empty. When you have created a RAM disc, an icon appears on the icon bar. Click on this icon to open the directory display.

If you want to set up a RAM disc each time you use the computer, use the !Configure application described in chapter entitled *Setting the configuration* on page 83.

Using a RAM disc

A RAM disc is a convenient way of speeding up some operations, at the cost of using some of the computer's memory. Two examples are given here.

Copying between floppy discs using a single drive

As mentioned in the section *Dismount*, earlier in this chapter, when you are copying a group of objects from one floppy disc to another using a single drive, you have to change the disc after each file or directory. This can become tedious. An alternative is to allocate as much space as you can in a RAM disc, copy all the files (or as many as will fit) into RAM disc from the source disc, and then copy them from RAM disc to the destination disc. When you have finished, delete the files from the RAM disc, and quit the RAM disc by choosing **Quit** from the icon bar menu.

Keeping frequently-used files in a RAM disc

Another common use of the RAM disc is to hold programs and data files that you use frequently. Keeping them in the RAM disc reduces the time they take to load, and may help you avoid having to change discs to find them.

Do not keep files that you are changing in the RAM disc: it is too easy to switch off the computer without transferring them to a permanent medium such as a disc or a network file server. If you use the **Shutdown** option from the Task Manager, it will warn you if there are still files in the RAM disc.

Running part of an application from a RAM disc

If your computer has only a single floppy disc drive but more than 1MB of RAM, and the application you want to run uses two floppy discs, you can use a RAM disc as a substitute for a floppy disc drive. Decide which disc you wish to transfer to RAM and insert it into the disc drive. Choose **Free** from the icon bar menu to see how large the RAM disc needs to be, and create a disc of the appropriate size. Then copy the contents of the floppy disc to the RAM disc.

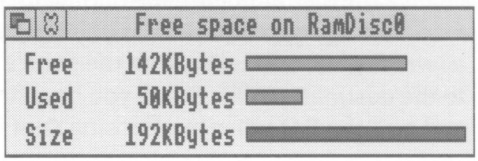
Before loading a file into the application, double-click on the parts of the application you have transferred into RAM, so that the computer knows that it should find them there, rather than looking for them on the floppy disc.

Displaying the RAM disc icon bar menu

As with most storage devices, the RAM disc has its own icon bar menu with options specific to the filing system. Click on Menu over the RAM disc icon on the icon bar and the RAMFS menu is displayed. This gives you access to two commands – **Free** and **Quit**.

Free

To see how much space is available, click Menu on the RAM icon, and choose **Free**. This displays the total free and used space, in KB.



Quit

When you have finished using the RAM disc, you can remove it from the icon bar by pressing Menu on the RAM icon and clicking on **Quit**. If the RAM disc is not empty you will be given a warning that you will lose its contents if you go ahead. Click on **OK** to close the RAM disc anyway, or on **Cancel** if you want to keep it.

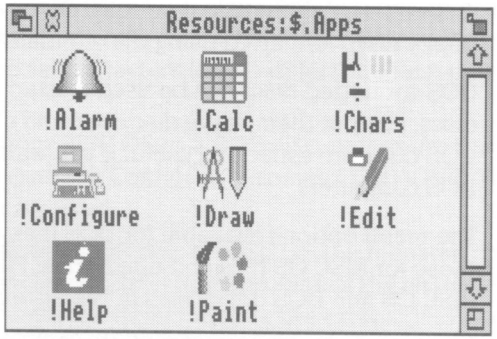
The Apps directory

The Apps directory on the icon bar contains applications that are held permanently in ROM (Read Only Memory). Stored in ROM, these applications load more quickly than from disc, and take up much less RAM while they are running. The four most generally useful applications – Edit, Draw, Paint and Configure – are among those held in ROM.

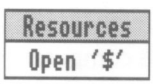
The Resource Filing System (ResourceFS) handles access to the applications and files stored in ROM. The principal difference between ResourceFS and other filing systems is that you cannot alter or delete anything held in it.

When you switch on your computer, one of the icons on the left of the icon bar is the ResourceFS icon, with the word Apps underneath it. Click on this icon to display the Apps directory of ResourceFS in a normal directory display. The directory structure of ResourceFS is similar to that of any other filing system.

Here is the directory display for the Apps directory:



Displaying the Apps icon bar menu



The Apps directory has its own icon bar menu with an option specific to the filing system. Click on menu over the Apps icon on the icon bar. The menu will be displayed, containing the single option **Open '$'**.

When you click Select on the Apps icon, its directory display appears on the screen. Its title bar shows that it is not, however, the root directory of Resources; rather like the user directory on a file server (described earlier in this chapter), it is the one you are most likely to find useful. You can open the root directory if you wish by pressing Menu on the icon bar icon and clicking on **Open '$'**.

Auto-starting Apps applications

You may want some of the applications in the Apps directory to start automatically each time you switch on your computer. You can do this by using the Configure application. For more information about auto-starting applications, read the chapter entitled *Setting the configuration* on page 83.

This is particularly useful if you have a computer without a hard disc. If you have a hard disc, you can achieve the same – and more – by using the **Desktop boot** option from the Task Manager menu (described in the chapter entitled *Desktop boot files* on page 107). This allows you not only to auto-start Apps applications, but also to log on to a network and load applications stored on disc.

Using DOS-formatted discs

As well as using the standard RISC OS formats for floppy discs, you can also use floppy discs formatted using the standard DOS formats.

DOS-formatted discs can be used in exactly the same way as RISC OS-formatted discs; just put them in the disc drive and click on the floppy disc icon to view them. DOS discs are especially useful if you want to move files between RISC OS and DOS computers.

The menu options available for DOS files and directories are exactly the same as those for RISC OS files and directories. Files can be copied and moved between RISC OS and DOS directories in the normal way.

Instructions for formatting with the DOS disc formats are given the section entitled *Floppy and hard discs* on page 31.

Moving RISC OS text files to a DOS computer

If you store files on a DOS-formatted floppy disc you can transfer the files to a DOS computer simply by taking the floppy disc and reading it in a DOS computer.

You should be able to read text files (those created by Edit). However 'top-bit set' characters are not supported. In practice this means that all the letters you can type on the keyboard, except the £ sign, will be readable. Characters generated using !Chars will not be readable and may be translated into different characters when read on a DOS computer.

Binary and other non-text files will probably not be readable on a DOS computer.

Moving text files from a DOS computer to RISC OS

You can transfer files from a DOS computer to RISC OS by taking the files stored on a DOS-formatted floppy disc and reading it on a RISC OS computer.

The same restrictions apply in that only standard characters will be readable. The £ sign will not be readable nor will any 'top-bit set' characters. In practice this means that all the characters you can type on the keyboard except the £ sign will be readable.

Some DOS word processors end each line with a carriage return and a line feed; this makes text look double-spaced when it is read into Edit. This can be cured easily by using Edit to replace the carriage returns with nothing.

Translating file names and attributes between DOS and RISC OS

RISC OS file names are limited to 10 characters without an extension whilst DOS names are limited to eight characters with a three letter extension. The DOS interpretation of special characters is also different. File names are therefore mapped as follows:

- When copying from RISC OS to a DOS disc, names are truncated to eight characters. For example Configure becomes CONFIGUR. The RISC OS filetype of an object is preserved.
- When copying from a DOS disc to RISC OS the filename, including the extension is truncated to 10 characters. One of the characters will be a '/' which is added to separate the filename from the extension. For example, AUTOEXEC.BAT becomes AUTOEXEC/B.
- File names are only truncated if the command *Configure Truncate is set to **on,** which it is by default. If *Configure Truncate is set to off, an error is generated.

When copying from one DOS disc to another DOS disc (or a DOS hard disc partition), file names are never truncated. All eight characters, the dot separator and the three character extension are copied. However, when looking at the files in a directory display, only the first 10 characters are displayed and the 'dot' separator is displayed as a '/'.

File attributes

Since there is not a complete mapping between RISC OS file attributes and those provided by DOS, attributes are set as follows:

- A RISC OS file which is write protected will be read only under DOS.
- A DOS file which is read only will be write protected and locked under RISC OS.

DOS file icons

If you display a disc that contains DOS files, the RISC OS filer displays them with this icon.

You can copy DOS files onto any RISC OS floppy or hard disc; the files retain their DOS filetype and are not translated in any way.

If you wish, you can assign RISC OS file types to DOS file types using the *DosMap command. This will, for example, let you assign DOS files with the extension TXT the RISC OS filetype Text. For more information refer to the DosMap command in the chapter entitled *Star command summaries* on page 157.

Accessing hard disc partitions

If you have a DOS hard disc partition that you created using the PC Emulator you can use the Filer to treat the partition as a normal directory. This will allow you to access the DOS files in a RISC OS directory display.

Before the DOS partition can be accessed by the filer, you have to change its 'file type'.

To change the file type:

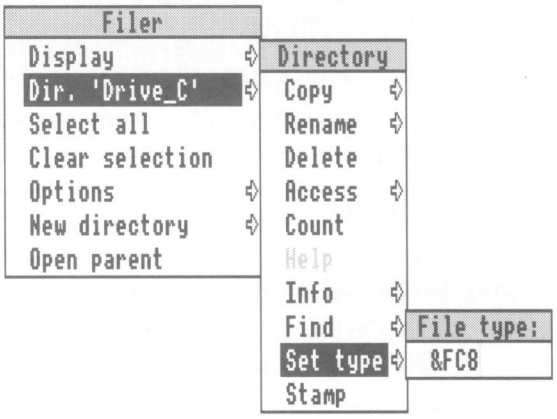
1 Display the directory in which your DOS hard disc partition resides.

2 Click on the hard disc partition.

3 Click menu and display the **Filer/Dir./Set type** box.

4 Delete the wording in the **Set type** box and replace it with the number **&FC8.**

5 Press Return.



Your partition now displays the DOS partition icon. Double click on the icon to display the files in your hard disc partition.

Copying DOS hard disc partitions

If you wish to copy your hard disc partition, it will be copied as a single file, not as a series of files and directories.

If you wish to copy it as files and directories, open the DOS partition, and then copy the files from within it.

Using Atari-formatted discs

Atari-formatted floppy discs can be used in exactly the same way as DOS-formatted floppy discs. See the previous section for details. Instructions for formatting with the Atari disc formats are given in the section entitled *Floppy and hard discs* on page 31.

3 Fonts

A font is a set of characters that share a similar design. Fonts are grouped into three categories:

- The **typeface** name, for example, Homerton, describes all similar-looking fonts.
- The **weight** indicates the density of the letters, for example, Medium or Bold.
- The **style** indicates other variations in the letters, for example, Italic, Oblique or Shadow.

For example, *Homerton.Bold.Oblique*.

Built in fonts

RISC OS comes with a set of fonts permanently built into the computer's ROM. These fonts are available for use by all applications that can use fonts. The fonts are called Corpus, Homerton and Trinity.

This font is called Corpus
This font is called Homerton
This font is called Trinity

Each of these fonts also comes in Bold, Italic and Bold Italic styles.

This is Corpus Medium Oblique
This is Corpus Bold
This is Corpus Bold Oblique

This is Homerton Medium Oblique
This is Homerton Bold
This is Homerton Bold Oblique

Disc based fonts

As well as the built-in fonts, a collection of disc-based fonts is also included on the applications discs. The !Fonts application on the applications disc contains the disc fonts. To make the disc fonts available for use, you should open the directory display containing the !Fonts application. Once you have done this, the computer will then know where to find the fonts.

The fonts supplied with the !Fonts application are:

This font is called System Fixed

This font is called System Medium

This font is called Portrhouse

Portrhouse is an additional font that has been designed to suit a standard monitor. However it is not an outline font, so it will begin to look ragged at large point sizes.

The system fonts are versions of the same font that is used for directory displays and icons on the desktop.

There is also a special symbol font, Selwyn. These has a character set that gives special symbols.

You can add further disc-based fonts to your !Fonts applications. See the section entitled *Adding more fonts* on page 59.

About fonts

The fonts supplied with your computer fall into two categories:

- Fixed-pitch fonts
- Proportionally-spaced fonts.

Fixed-pitch fonts (such as System font and Corpus) allow the same amounts of space for each character. An 'i' will take up the same amount of space as an 'm'.

Proportionally-spaced fonts (such as Homerton and Trinity) allocate different amounts of space to different characters. Thin characters take up less space than fat ones.

Anti-aliasing

All fonts (apart from the System font) can be anti-aliased. Anti-aliasing uses shaded pixels at the edge of each character to blur the edges of a character, so making it lose its jaggedness. This makes the character look better on screen. To control the amount and type of anti-aliasing applied to each font, see the *Fonts* section of the Configuration application on page 98.

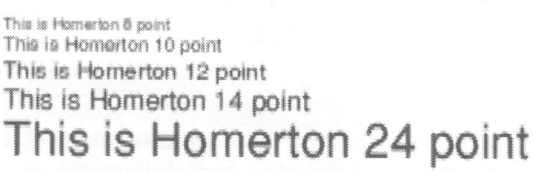
Font cacheing

Fonts are stored within the ROM in outline form. When the fonts are requested for display they are processed and stored in a font cache for future use. Any subsequent use of that font will not require any processing and the characters will be displayed much faster. To control the amount and type of cacheing applied to each font, see the *Fonts* section of the Configuration application on page 98, and the *Memory* section on page 94.

For a more thorough explanation of both anti-aliasing and cacheing, see the appendix entitled *Fonts and the Font manager* on page 235.

Font size

Most applications let you select the size of the font you wish to use. The font size is measured in points, a point being 1/72 of an inch. Some applications also allow you to set the font height separately. If you want characters with different height and width values, set the size first and then the height. Acorn fonts can be sized to any height or width allowed by the application.


This is Homerton 8 point
This is Homerton 10 point
This is Homerton 12 point
This is Homerton 14 point
This is Homerton 24 point

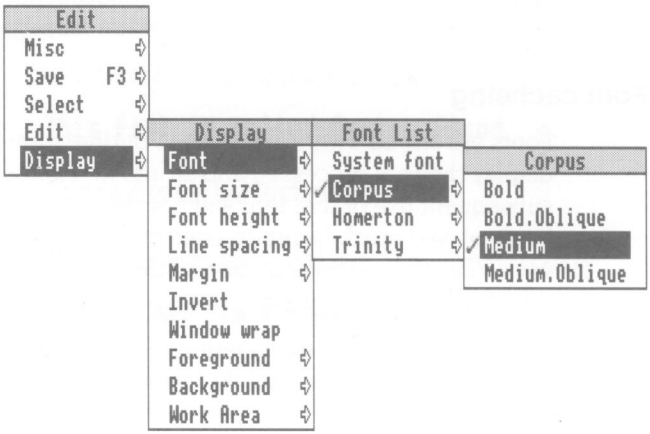
Using fonts

There are two applications in the applications suite that use fonts – Edit and Draw. These two applications use them in slightly different ways. Edit can display text in any type of font; however it can only print out in the font that is standard on your printer. On the other hand, Draw can both display and print fonts of varying size and typeface.

Fonts are used extensively by packages such as Acorn Desktop Publisher.

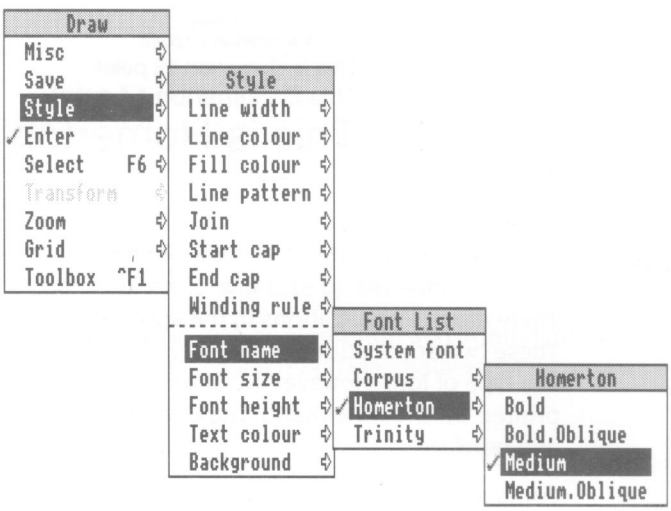
Using fonts in Edit

If you want to display your Edit text in a particular font, click Menu over the Edit window and choose the Display menu. Go to the Font menu and click on the font you wish to use.



Using fonts in Draw

You can put text using fonts into a drawing created with Draw. Select the Text tools, then click Menu over the Draw window and choose the Style menu. Go to the Font name menu and click on the font you wish to use.



Printing with fonts

If you have used fonts in your application, you can (if the application permits it) print out using those fonts also. Exactly the same outline fonts are used for both the screen and the printer. PostScript printers behave slightly differently.

The RISC OS printer manager program sits between the application and the printer. Printers, printing and printer drivers are explained fully in the next chapter entitled *Printing* on page 61.

Font mappings on PostScript printers

PostScript printers have their own set of fonts stored inside the printer. When you print to a PostScript printer the Acorn Screen fonts are mapped to the PostScript fonts inside the printer in the following way:

Acorn font family	PostScript font family
Trinity	Times
Corpus	Courier
Homerton	Helvetica
Selwyn	Zapf Dingbats
Sidney	Symbol

Acorn fonts not mapped directly to PostScript fonts are downloaded automatically by the printer manager as required.

Additional Acorn fonts can be mapped to PostScript fonts. For more information about using Acorn fonts with PostScript printers, refer to the section entitled *Downloading fonts to PostScript printers* on page 79.

Adding more fonts

The Applications Suite contains the utility !Fonts, which contains the Porterhouse, System and Selwyn fonts mentioned earlier. Additional Acorn fonts are available from your supplier. Some applications also supply you with additional fonts.

If you have a hard disc drive, you should normally keep your !Fonts application in the root ($) directory. If you do not have a hard disc drive, you should copy !Fonts to an empty floppy disc and use this disc to hold all your fonts.

You can have more than one !Fonts application, so if your fonts floppy fills up, or you have too many fonts to fit into a single directory, create a second !Fonts application on a new floppy disc. Make the computer recognise the new fonts contained in the !Fonts application by double-clicking on the !Fonts icon.

Adding Acorn outline fonts

These instructions show you how to copy new outline font directories into your !Fonts application.

1 Display the directory display containing !Fonts.

2 Open the !Fonts application directory (by holding down Shift and double-clicking on the icon).

3 Copy the directory containing the new font into the !Fonts application directory.

4 Close the !Fonts application directory.

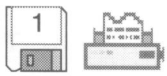
5 Activate the new fonts by double-clicking on the !Fonts application.

At the start of each session in which you wish to use the fonts, you should open the directory display containing !Fonts, so that RISC OS knows where the fonts are held.

Acorn font packs contain a special program that automates the installation. Read the Acorn font pack documentation for more details.

Additional information about how to use !Fonts is given in the chapter entitled *System applications* on page 121.

4 Printing



All printing is handled by the printer manager, **!Printers**. The printer manager provides an interface between your printer and the file that is being printed.

Before you can start printing, you need to set up the printer manager so that it is using the correct printer driver for your printer. After that you need to set up the printer driver so that it communicates correctly with your printer.

This chapter tells you how to

- set up and connect your printer
- choose which printer driver to use
- configure the printer driver
- print a file.

It then goes on to explain further options such as:

- Screen and printer fonts
- Adding new fonts
- Using PostScript fonts
- Text formats
- Downloading and mapping fonts
- Customising printer drivers.

Setting up the printer

Before you can print from your computer, you need three things:

- a suitable printer
- a printer cable, with connectors for the computer and the printer
- an appropriate printer driver (supplied on the Applications discs).

Types of printer

Your supplier will advise you on suitable printers for your computer. RISC OS supports most types of popular dot matrix printer, such as the Epson FX and LQ and the NEC PinWriter, as well as colour printers such as the Integrex. It also supports laser printers compatible with the HP LaserJet and Apple LaserWriter (PostScript).

The following printers are among those supported:

Epson FX series	Integrex Colourjet
Epson MX series	Star LC series
Epson LQ series	Citizen Swift series
NEC P series	HP LaserJet & DeskJet series
IBM Proprinter series	Most PostScript laser printers
Canon Bubblejet	

If your printer is not on this list, check the Release Note to see if your printer is now supported. You can also often run your printer in emulation mode. Most dot-matrix printers can emulate the Epson FX or LQ printer. Most non-PostScript laser printers can emulate the HP LaserJet or DeskJet printers. Read your printer's user manual for more information.

All the printer drivers are contained in individual manufacturer's directories within the **Printers** directory on Applications disc 2.

You can create a printer driver that is specifically tailored for your printer. The *PrintEdit* application, described in the *Applications Guide*, shows you how to create a new printer driver.

Connecting the printer

If you are connecting the printer directly to your computer you have two choices: connection via the serial port or the parallel port. Generally using the parallel port will be quicker; however not all printers have a parallel connection. Your supplier will be able to advise you on which port to use.

Your supplier will also be able to advise on a printer cable. If you are making one yourself, details of the pin connections from the computer's output ports can be found in the *Welcome Guide*. You will also need to consult the printer documentation for information on how to wire the connector to the printer. A cable suitable for an IBM PC or compatible will often be suitable for your computer.

If you are connected to an Econet network or an Ethernet network (via NFS), you may have access to a network printer. Consult your network manager for more information.

The printer manager

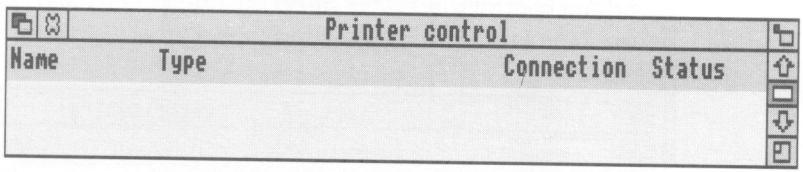
The printer manager is an application (called !Printers) that provides an interface between the printer and your application software (an editor or word processor, for example). The printer manager is used for printing files, and to provide printer support for applications.

The printer manager application uses printer definition files to tell the computer what type of printer you are using. These files are contained in individual manufacturer's directories within the **Printers** directory on Applications disc 2.

The rest of this chapter tells you how to load and set up the printer manager.

Loading the printer manager

Load the printer manager by double-clicking on the !Printers icon. After a few seconds the printer manager icon appears on the icon bar. Click Menu over the Printers icon and then choose the **Printer control** menu option.



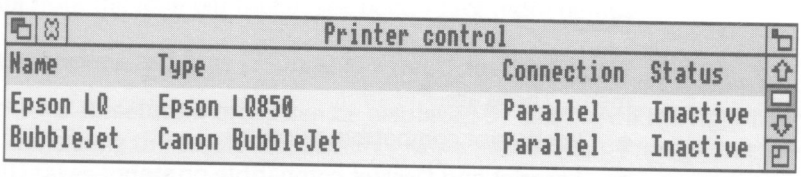
This displays the Printer control panel. The next step is to load a printer driver.

Loading printer drivers

Load a printer driver by opening the **Printers** directory on Applications disc 2. This contains the printer driver directories. There is a directory for each printer manufacturer. Open the directory that corresponds with the manufacturer of your printer.

Choose the appropriate printer driver for your printer; the driver will have a similar name to that of your printer. Drag the appropriate printer driver onto the Printer control window. The printer name will appear in the window.

If you want to have more than one printer loaded, drag additional printer drivers to the Printer control window.



Choosing a printer type

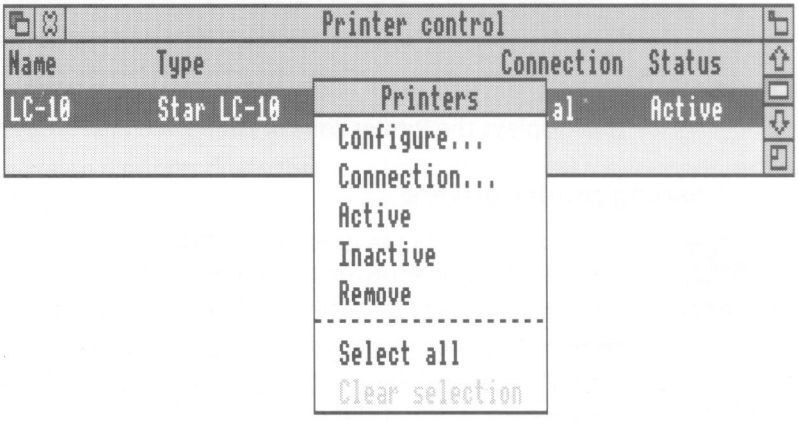
You should choose the printer type that is closest to the printer you have. If your printer is not listed, it may have a compatibility mode that can be selected. 9-pin dot matrix printers can usually emulate the Epson FX printer, while 24-pin dot matrix printers can usually emulate the Epson LQ printer; your printer manual should give details.

Non-PostScript laser printers can often emulate the HP LaserJet or have a compatibility mode that emulates the HP LaserJet (or DeskJet); again, your printer manual should give details.

Choosing the right configuration

After you have loaded your printer driver, you must choose the correct printer type and configuration to give the results you want.

To display the configuration window, either double-click on the printer driver in the printer control window, or select the printer entry and choose the **Configure** option from the Printer control window menu.



If you want to change the configuration of a printer that is already on the icon bar, then click on the printer icon on the bar while holding down Shift.

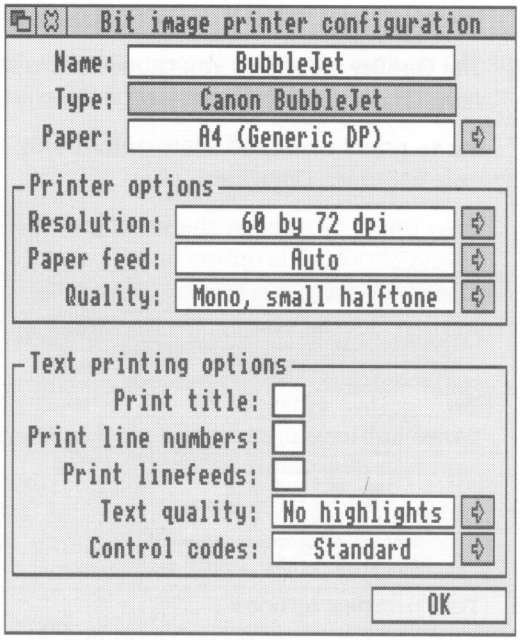
Classes of printers

There are three classes of printers; each has a slightly different configuration menu. These are:

- PostScript compatible printers
- LaserJet and DeskJet compatible printers
- Dot-matrix and Inkjet printers.

In the following sections, each configuration type is explained separately.

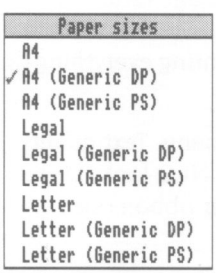
Configuring bit-image printers



Bit-image is the collective name given to dot-matrix and inkjet type printers.

Choosing the printer name and paper type

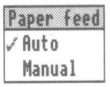
The **Name:** box gives the name that will appear beneath the printer icon. You can, if you wish, change this to something more meaningful for you.



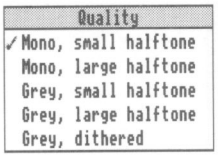
The **Paper:** box gives the paper size to be used by the printer. This is usually A4 in Europe. If you want to change the paper size, click on the righthand arrow icon; this displays the **Paper sizes** menu. Choose the alternative paper size you wish to use. The paper sizes marked **Generic DP** are usually best for non-PostScript type printers. It is also possible to generate other page sizes using the **Edit paper sizes option** from the icon bar menu; see page 73 for more details.

Printer options

The printer **Resolution** menu can be displayed by clicking on the right hand arrow icon. Increasing the resolution usually gives a better quality image, but printing usually takes longer.



The **Paper feed** menu can be displayed by clicking on the righthand arrow icon. This menu lets you choose between Auto and Manual paper feed. Choose **Auto** if your printer has a sheet feeder or uses fanfold paper. Choose **Manual** if you have to insert each page by hand while printing is under way; you will then be prompted to insert paper at the end of each page.



The **Quality** menu lets you choose the type of printout quality. Click on the righthand arrow icon to display the menu.

Mono prints black and white output only. It does not halftone fonts or sprites; it only halftones Draw files.

Grey prints pictures in shades of grey. It halftones all types of files. You should always choose this option, unless speed of printing is more important than print quality, in which case choose **Mono** instead.

Colour prints in colour on colour printers.

Small halftone prints in 4x4 pixel halftones for grey scales and colour.

Large halftone prints in 8x8 pixel halftones for grey scales (no colour). Large halftones give better quality than small halftones.

Dithered gives the best quality results, especially for grey scale pictures. However it takes longer to print than the halftone options.

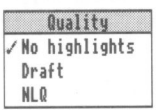
Text printing options

The text printing options allow you to control the way text is printed from an editor (such as Edit). Many applications override these options and replace them with other parameters.

Print title puts the filename, time, date, and page number at the top of each page.

Print line numbers puts line numbers at the beginning of each line.

Print linefeeds sends a linefeed to the printer (as well as a carriage return) at the end of each line. If you find that your printer is producing a blank line after each line of text, you should turn this option **off**. If your printer is printing everything on one line, then you should turn this option **on**.

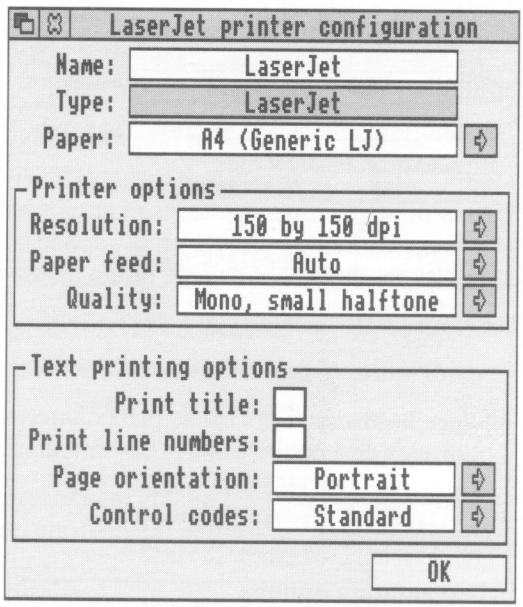


Click on the right hand arrow icon to display the **Text quality** menu. Text quality can be either **No highlights, draft** or **NLQ** (near letter quality). NLQ looks better but takes longer. (NLQ also uses more ink and wears the printer ribbon out quicker).

Click on the righthand arrow icon to display the **Control codes** menu. Control codes alter the way in which text files are printed. This should normally be set to **Standard**. **Display** causes all control codes and top-bit-set characters to be printed in hexadecimal notation. **Ignore** causes all control codes and top-bit-set characters to be ignored.

When you have finished configuring your printer, click on **OK**. If you want to go back to your old settings, ignoring any changes you may have made, click on the Close icon.

Configuring LaserJet printers



LaserJet is the collective name given to all laser printers that can emulate the HP LaserJet printer.

Choosing the printer name and paper type

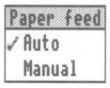
The **Name:** box gives the name that will appear beneath the printer icon. You can, if you wish, change this to something more meaningful for you.

The **Paper:** box gives the paper size to be used by the printer. This is usually A4 in Europe. If you want to change the paper size, click on the righthand arrow icon; this displays the **Paper sizes** menu. Choose the alternative paper size you wish to use.

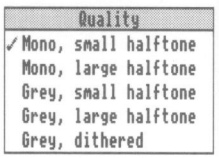
The paper sizes marked **Generic LJ** are usually best for LaserJet type printers. It is also possible to generate other page sizes using the **Edit paper sizes option** from the icon bar menu; see page 73 for more details.

Printer options

The printer **Resolution** menu can be displayed by clicking in the right hand arrow icon. Increasing the resolution usually gives a better quality image, but printing usually takes longer.



Paper feed menu can be displayed by clicking on the righthand arrow icon. The menu lets you choose between Auto and Manual paper feed. Choose **Auto** if your printer has a sheet feeder or uses fanfold paper. Choose **Manual** if you have to insert each page by hand while printing is under way.



The **Quality** menu lets you choose the type of printout quality. Click on the righthand arrow icon to display the menu.

Mono prints black and white output only. It does not halftone fonts or sprites; it only halftones Draw files.

Grey prints pictures in shades of grey. It halftones all types of files. You should always choose this option, unless speed of printing is more important than print quality, in which case choose **Mono** instead.

Colour prints in colour on colour printers.

Small halftone prints in 4x4 halftones for grey scales and colour.

Large halftone prints in 8x8 pixel halftones for grey scales (no colour). Large halftones give better quality than small halftones.

Dithered gives the best quality results, especially for grey scale pictures. However it takes longer to print than the halftone options.

Text printing options

The text printing options allow you to control the way text is printed from an editor (such as Edit). Many applications override these options and replace them with other parameters.

Print title puts the filename, time, date, and page number on each page.

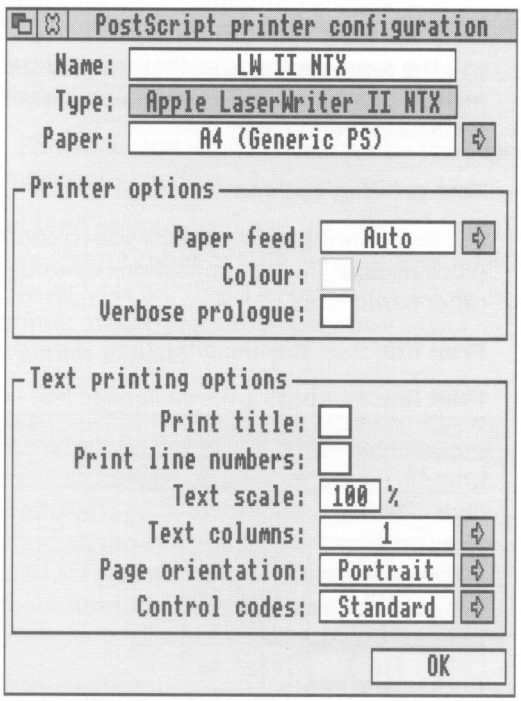
Print line numbers gives each page line numbers.

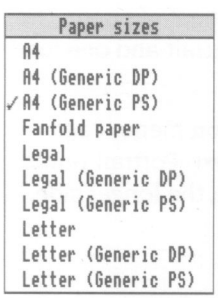
Click on the righthand arrow icon to display the **Page orientation** menu. Page orientation allows choice of portrait or landscape orientation text. Portrait prints along the shorter side of the paper while landscape prints along the longer side.

Click on the righthand arrow icon to display the **Control codes** menu. Control codes alter the way in which text files are printed. This should normally be set to **Standard**. **Display** causes all control codes and top-bit-set characters to be printed in hexadecimal notation. **Ignore** causes all control codes and top-bit-set characters to be ignored.

When you have finished configuring your printer, click on **OK**. If you want to exit without saving your changes, click on the Close icon.

Configuring PostScript printers





PostScript is the name given to all laser printers that are PostScript-compatible.

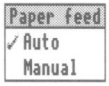
Choosing the printer name and paper type

The **Name:** box gives the name that will appear beneath the printer icon. You can, if you wish, change this to something more meaningful for you.

The **Paper:** box gives the paper size to be used by the printer. This is usually A4. If you want to change the paper size, click on the righthand arrow icon; this displays the **Paper sizes** menu. Choose the alternate paper size you wish to use. The paper

sizes marked **Generic PS** are usually best for PostScript type printers. It is also possible to generate other page sizes using the **Edit paper sizes option** from the icon bar menu; see page 73 for more details.

Printer options



Paper feed menu can be displayed by clicking on the righthand arrow icon. Normally the **Paper feed** option should be set to **Auto**. If you are feeding paper or envelopes through the manual feed choose **Manual**.

Choose **Colour** if you are printing in colour on a colour PostScript device.

Choose **Verbose prologue** if you wish to declare all of the PostScript printer fonts. However, most applications are satisfied with a simple prologue. This option gives you the same prologue as that used by the RISC OS 2.00 printer drivers; it is included for backward compatibility only. Do not choose this option unless your application requires it.

Text printing options

The text printing options allow you to control the way text is printed from an editor (such as Edit). Many applications override these options and replace them with other parameters.

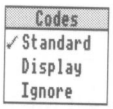
Print title puts the filename, time, date, and page number on each page.

Print line numbers gives each page line numbers.

You can adjust the size of the printed type by giving a **Text scale** factor. PostScript printers have a wide range of available sizes, so you can scale the text to suit your taste. 100% gives standard sizes, 200% uses twice the size, and 50% gives half the size (twice as many characters per inch). The scale factor is in the range 20% to 999%. However there must be at least 10 characters on a line, so more than 700% will give an error if used with portrait mode. You can select a different scale factor for each orientation.

Click on the righthand arrow icon to display the **Text columns** menu. Text Columns specifies the number of columns of text to be printed on each sheet of paper. The printer manager remembers the two chosen values - one for portrait and one for landscape printing.

Click on the righthand arrow icon to display the **Page orientation** menu. Page orientation allows choice of portrait or landscape orientation text. Portrait prints along the shorter side of the paper while landscape prints along the longer side.



Click on the righthand arrow icon to display the **Control codes** menu. Control codes alter the way in which text files are printed. This should normally be set to **Standard**. **Display** causes all control codes and top-bit-set characters to be printed in hexadecimal notation. **Ignore** causes all control codes and top-bit-set characters to be ignored.

When you have finished configuring your printer, click on **OK**. If you want to exit without saving your changes, click on the Close icon.

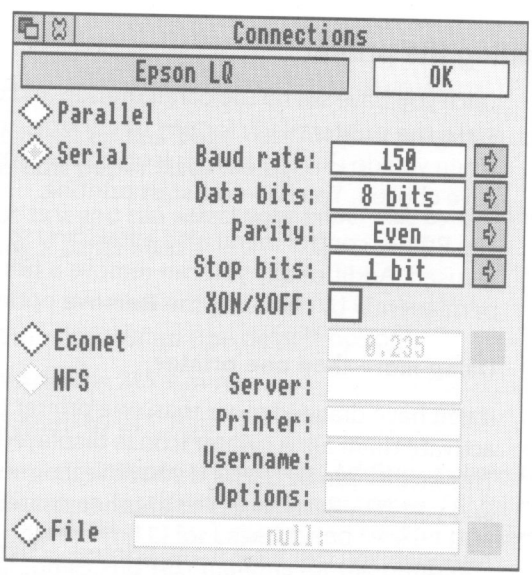
Communicating with the printer

This section applies to both PostScript and non-PostScript printers

Once you have loaded the printer driver, you must set it up so that it can communicate with the printer.

Click Menu over the Printer control window and choose the **Connection** option. This displays the Connections window.

The printer driver can send printed output to the printer using the **Parallel** port, the **Serial** port or through an **Econet** or **NFS** network port; additionally it can save printer output in a **File** for later printing. The communications port you choose will depend upon your printer and printer cable. Check with your supplier for more details, or read your printer manual.



Choose one of the following connection options:

Parallel allows you to connect a printer to the parallel port.

Serial allows you to connect a printer to the serial port. You can set the Baud rate, Data bits, Parity, Stop bits and XON/XOFF. To alter the values, click on the righthand arrows and choose a new value.

Econet allows you to connect to an Econet network printer. To change the name of your printer, click on the righthand arrow and choose a new printer. Alternatively you can type in the name or station number of the printer to use. You must have an Econet network connection to use this option.

NFS allows you to connect to printers available on NFS networks. You cannot use this option unless you are already running Acorn's TCP/IP communication protocol product. For an explanation of how to fill in the NFS fields, ask your network manager. Alternatively read the TCP/IP *Protocol Suite User Guide*. You must have an Econet or Ethernet network connection to use this option.

File allows you to send printer output to a file. Type the name of the file into the File field (using the complete pathname). Alternatively click on the righthand arrow and drag the **Save as** box to the desired directory display; your output will now be directed to this file.

If you want to change the printer connection of a printer that is already set up on the icon bar, click Adjust on the printer icon while holding down Shift.

Activating the printer

Once you have set up the configuration and connection options correctly, you must make the printer ready for use by clicking on **Active** in the Printer control menu. When you do this the printer icon on the icon bar changes to reflect the printer you have chosen. You can now start printing.

The Printer control menu also allows you to make a printer **Inactive**, so that it can't be used. Additionally you can remove a printer from the Printer control window permanently by choosing the **Remove** option.

Using more than one printer

If you have dragged more than one printer to the Printer control window you can activate them all. A printer icon is displayed on the icon bar for each active printer. This facility can be useful if you have a printer connected directly to your computer, and you also have access to another printer connected via a network.

Although you can have many printers activated on the icon bar, only one of these printers is highlighted; all of the others are greyed out. When you click on the Print option in an application, the file to be printed is sent to the highlighted printer.

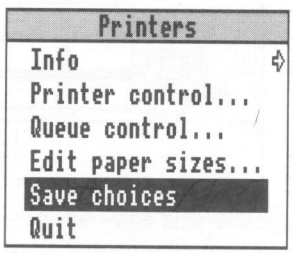
You can choose to print using a different printer by clicking over a different printer icon on the icon bar. This highlights the new printer driver and greys out the old one.

You can also print using any of the printer drivers (highlighted or not) by dragging files onto the desired printer's icon.

Saving your choices

You should save any changes you make to the settings for your printer, otherwise you will have to go through the setting up procedure again, next time you start the printer manager. To do this, click on the **Save choices** option on the printer icon bar menu.

Once you have saved your setting, the printer manager automatically loads your activated printer driver onto the icon bar each time you start the printer manager.



Editing paper sizes

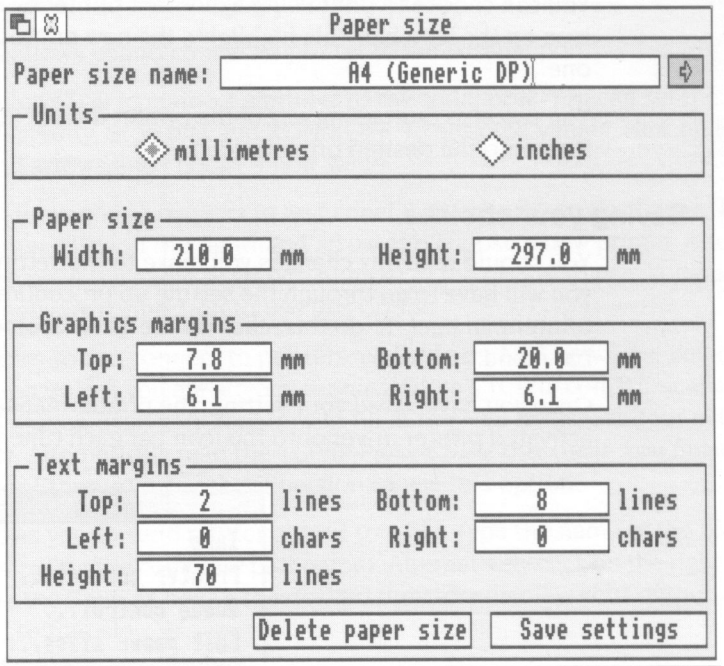
You can, if you wish, set up new page sizes for your printer. From the icon bar menu, display the **Edit paper sizes** dialogue box.

From this dialogue box you can select your paper size by clicking on the righthand arrow and choosing a paper size.

These are:

- A4 – 297mm by 210mm (the default option)
- Letter – 279.4mm by 215.9 mm
- Legal – 355.6mm by 215.9mm

These are the three generic types of page size. Additional sizes that fine tune these dimensions are also given for the various printer types: DP for dot-matrix printers, PS for PostScript printers and LJ for LaserJet and DeskJet printers. These additional sizes define the Graphics and Text margins for the printers.



Defining your own paper dimensions

Once you have selected your basic paper size you can fine tune it to your own requirements. You can change the name in **Paper size name** and change the **Paper height** and **width** if you are using a special sized paper. Finally you can change the margins within which text and graphics will be printed. Click on the **Save settings** box to save the new paper dimensions for future use.

PostScript printers, and some other printers, need to know which tray to take paper from. This information is derived from the Paper size name. The name should therefore be in the form **`paper size (name)`**, where the `paper size` is the size of the paper in the paper tray. For example, A5 (memo-letter) will use paper in the A5 tray.

Graphics margins

The graphics margins must reflect the true printable area of the page (look this up in your printer manual). The margins ensure that graphics are printed properly and they are also used by applications (such as Draw). The margins correspond to those of a portrait page; landscape page values are worked out automatically. The graphics margins exist to tell the printer where to print on a piece of paper. The margins cannot be used to, in effect, move the printed result around on the page.

Text margins

Text margins are measured as relative to the printable area of the page (defined by the graphics margins). The **left** and **right** margins are measured in characters and the **top** and **bottom** margins measured in lines. The **height** is the total number of lines on a page, including the margins. If you want to move the position of the text output on the page, alter the text margin settings.

PostScript and HP LaserJet compatible printers

For these printers, the total number of lines per page and characters per line are determined automatically. LaserJets print plain text using the internal Courier font at 10 characters per inch and 6 lines per inch in portrait orientation and 16.66 characters per inch and 8 lines per inch in landscape orientation. PostScript printers determine the font size from the **Text scale** and **Text columns** values in the **Configure** dialogue box.

Dot-matrix printers

For dot-matrix printers, printing is ragged right only and there is no right margin control; lines that are too long simply wrap around.

Saving your choices

To save any changes you make in the Page size dialogue box, click on **Save settings**; this saves them for the current session. If you wish to save the changes permanently, you should click on the **Save choices** option in the icon bar menu.

If you wish you can delete a paper size by selecting it and then clicking on **Delete paper size.** You can only delete sizes that you have created or altered. When you have finished, close the window by clicking on the close icon.

Printing a file

Now that you have connected a suitable printer, loaded a matching printer driver and configured it to suit the printer and the job you want to print, you are ready to start printing.

To print a Draw file, Paint file or other application file, drag the file onto the printer driver icon. If the application is not already running, it will be loaded before the file is printed (as long as the filer has 'seen' the application). For example, if you want to print a Draw file, Draw will be loaded onto the icon bar. However Text files are printed directly (!Edit is not loaded). While a file is being printed, **Printing** appears beneath the icon.

Paint and Draw files can also be printed by selecting **Print** from the appropriate menu in each application; alternatively you can press the Print key.

When the printer manager is loaded, it also loads a printer module, which can be used without the user interface offered by the printer manager. If you are short of memory you may find it convenient to use this module on its own: for example, when you are printing graphics from Draw (you can't use the module on its own when printing from Edit). To do this, install the printer in the normal way, and then remove it from the icon bar by selecting **Quit** from the icon bar menu. The printer icon will now disappear, but the printer module remains behind.

Printing several files

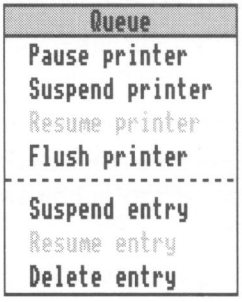
You can print several files one after another, either by opening their directory display, selecting the files to be printed and then dragging their icons onto the printer icon, or by dragging more file icons onto the printer icon while printing is in progress. The names of files to be printed are placed in a printer queue.

Queue control

If you want to print several files, you do not have to wait until one has finished printing before sending the next. Files to be printed wait in a print queue until the printer is ready for them. This way you can carry on with your work at the same time as the printer is printing.

To control the print queue, choose **Queue control** from the icon bar menu. This displays a list of files to be printed in the **Printer queue** window. You can also display this window by clicking Adjust on the printer icon on icon bar.

Clicking Menu on the Printer queue window displays the **Queue** menu from which you control the printer.



Pause printer stops sending your file to the printer. The rest of the unprinted part of the currently printing file is not printed until you click on **Resume printer**.

Suspend printer prints the file currently being printed and then stops the printer. No further files are printed until you click on **Resume printer**. The printer queue is frozen in its current state.

Flush printer deletes the entire print queue so that no more files are printed or queued.

Pause entry stops the current entry printing and carries on with the next entry in the print queue.

Suspend entry stops the printer from printing a file in the print queue. The print queue 'jumps over' the suspended file. The file can be put back in the queue to be printed by clicking on **Resume entry**.

While an entry is suspended, it can be removed from the queue completely with **Delete entry.**

Advanced printing

You should now know enough about printing to be able to set up the printer manager to print with your printer. The rest of this chapter deals with some of the more advanced aspects of printing. These are:

- Types of text printing – plain and fancy
- Speeding up graphics printing
- Printing 1st Word Plus files
- Downloading and mapping fonts to PostScript printers.

Unless you are interested in one of these areas, you don't need to read the rest of this chapter.

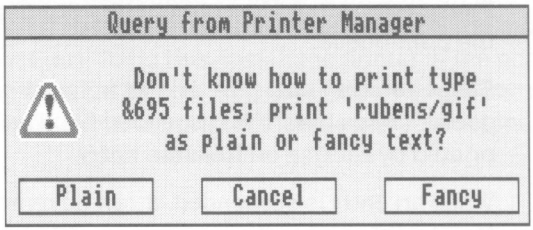
Plain and fancy text printing

Text printing (such as printing from Edit) uses the printer's own internal font to print in.

There are two types of text printing – *Plain* and *Fancy*. The way in which a file is printed depends upon its type:

- Command and Obey files are always printed as plain text
- Text files are always printed as fancy text
- PostScript files (with the file type PoScript) are sent to the PostScript printer for interpretation
- Other files check with their application (eg Draw files check with !Draw) to see how they are printed.

If the original application cannot be found, a dialogue box asks if the file should be printed as plain or fancy text.


Query from Printer Manager
Don't know how to print type &695 files; print 'rubens/gif' as plain or fancy text?
Plain
Cancel
Fancy

If you see this message you should try to find the application that the file requires to print properly. If you don't have the application, try printing it using the **Plain** option. The **Fancy** option is most often used to print files created using 1st Word Plus.

Speeding up graphics printing

This section refers only to dot-matrix, inkjet and HP LaserJet type printers; PostScript printers handle graphics printing in a different way.

Graphics printing can be slow. However you can speed it up in the following ways:

- Print in monochrome instead of Grey scale. You only need grey scale if you are printing fonts or sprites in shades of grey or in colour.
- Maximise the free memory in your computer by quitting all the applications you are not currently using.
- Maximise the free memory in your computer by quitting a RAM disc, changing to a different screen mode (mode 0 or mode 11 are better) and reducing the system sprite memory.
- Ensure that you have a fairly large font cache – at least 128KB. The font cache can be temporarily changed using the Task manager; see page 103 for more details.

Printing 1st Word Plus files

1st Word Plus is a word processor, available from your Acorn dealer. You can print 1st Word Plus files when 1st Word Plus is not running by dragging the files onto the printer icon in the normal way.

If your 1st Word Plus file contains sprites, they will not be printed if you use this method; instead, use the printer drivers supplied with 1st Word Plus. You should also use the 1st Word Plus printer drivers if your document uses footnotes.

If 1st Word Plus is running, you can still print using the printer manager, but printing will in fact be controlled by 1st Word Plus. It is therefore still essential in such circumstances that you set the features you need on the 1st Word Plus keypad.

Printing 1st Word Plus files using the other printer drivers

For successful printing, you will need to do *one* of the following:

- Ensure that the computer has not 'seen' the 1st Word Plus application directory during the current session.
- Enter the Command Line (Press F12) and type:

```
*Unset Alias$@PrintType_AF8
```

- Edit two files within 1st Word Plus itself: the !Boot file and the !Run file. Remove the following line from both of these files:

```
*Set Alias$@PrintType_AF8 Run <Obey$Dir>.!Run %%*0 -print
```

The fancy text format

Fancy text format understands text printing options such as Paper feed, Title, Number lines, Print quality and Control codes. Plain text format ignores these settings.

The fancy text file format is mainly the same as the 1st Word Plus file format, and so most of the highlighting (in 1st Word Plus files) is printed correctly. This means you don't have to load 1st Word Plus to print out your 1st Word Plus files (although you can't print sprites). The fancy text file format is described in detail in the appendix entitled *The fancy text file format* on page 241.

Downloading fonts to PostScript printers

All printers, except PostScript printers, use the same fonts for displaying text on screen and for graphics printing. PostScript fonts, however, need to use either the PostScript fonts built into the printer or downloaded PostScript fonts.

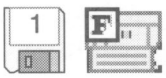
Whenever you send a file to the printer, the printer manager

1. converts (or maps) any Acorn fonts needed to PostScript fonts
2. sends the fonts to the printer
3. sends the file to be printed
4. erases the downloaded fonts from the printer's memory.

The printer manager uses the printer's built-in PostScript fonts when they are available, speeding up printing text files considerably.

If you constantly use fonts that are not resident inside the PostScript printer, you may find that your files print faster if you pre-send (download permanently) the fonts when you first start using the printer manager. Permanently downloaded fonts stay inside the printer, ready for use, until the printer is reset or switched off.

Downloading fonts 'permanently'

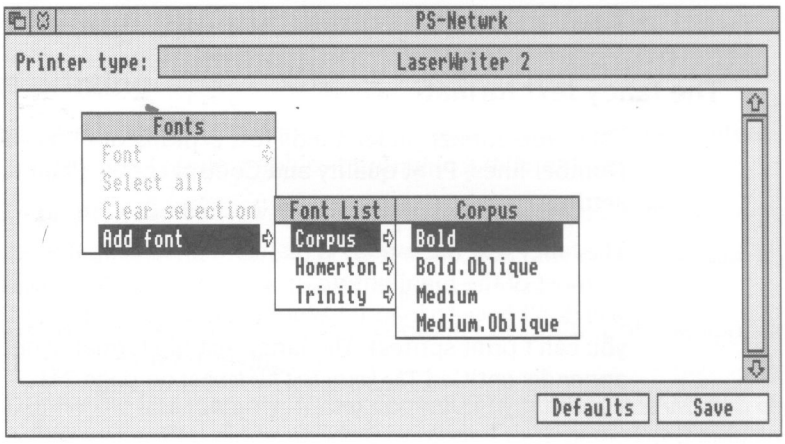


The application *FontPrint* is used to download fonts to the printer, where they will stay resident until you reset the printer. Before running Fontprint you must have the printer manager application *Printers* loaded onto the icon bar. The printer manager must also be active and configured for your PostScript printer.

To prepare fonts for downloading:

1 Load FontPrint onto the icon bar by double-clicking on its icon.

2 Click Select on the FontPrint icon bar icon to display the download window.



3 Click Menu over the window to display the **Fonts** menu.

4 Select the Acorn fonts that you wish to download by choosing the fonts from the **Add font** submenu.

5 When you have selected the fonts you wish to download, click on the **Save** box. This saves the download file within the printer manager. The printer manager will now use this file to download fonts to your chosen printer whenever the printer manager is run.

Mapping Acorn fonts to PostScript fonts

Instead of Acorn fonts being downloaded to the printer they can instead be mapped to a corresponding PostScript font. This way the built-in PostScript fonts are used whenever possible.

When you click on **Defaults,** the default font mappings are displayed. These defaults map the fonts supplied inside the computer and in the !Fonts application to PostScript fonts supplied inside the PostScript printer. This mapping is done automatically, so if these are the only fonts to be mapped, there is no need to use the FontPrint application.

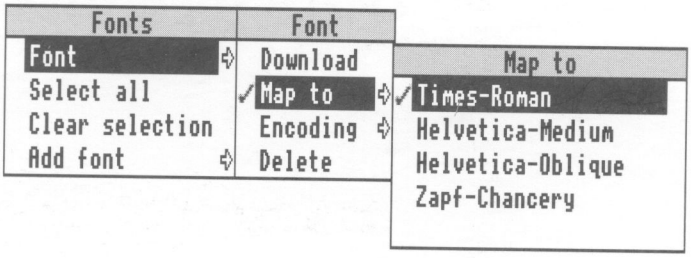
Use FontPrint only if you want to map additional Acorn fonts to PostScript fonts. Mapping and downloading can be mixed: some fonts can be mapped while others are downloaded.

To map an outline font:

1 Load FontPrint in the usual way and display the download window.

2 Click Menu over the window to display the **Fonts** menu.

3 Select the Acorn fonts that you wish to map to PostScript fonts by choosing the fonts from the **Add font** submenu.



4 Once you have chosen the fonts, map them to the corresponding PostScript font using the **Font/Map to** submenu. The **Map to** menu lists the fonts available on the printer. Additionally you can type in an additional PostScript name at the bottom of the menu.

5 When you have finished mapping the fonts, click on the **Save** box. This saves the file within the printer manager. The printer manager will now use this file to map fonts to your chosen printer whenever the printer manager is run.

Choosing the encoding type

If you are mapping fonts, you can also choose **Encoding** from the **Font** menu. The encoding type determines the character set used by the PostScript printer. Most fonts will use the Adobe standard encoding; this is the default encoding. However some fonts that have special characters such as Symbol fonts may use other encoding types such as **Symbol**.

Bitmap fonts

Bitmap fonts, such as Portrhouse, cannot be downloaded to a PostScript printer.

Part 2:
Desktop configuration

5 Setting the configuration

Your computer will function properly with the default settings that were set up when the computer was made. However you can change most of the settings that affect RISC OS configuration to suit more closely your own particular way of working, by using the application **!Configure**. Changes to the configuration mostly take effect as soon as you make them, and are maintained when you switch the computer off.

With Configure you can change the configuration of the

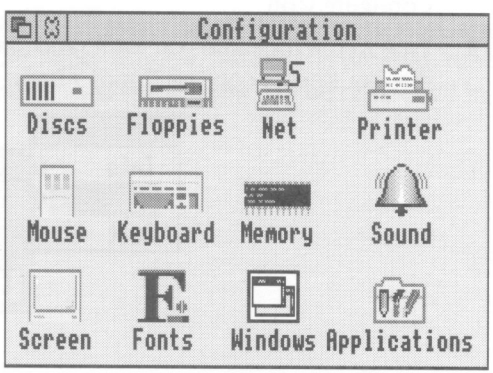
- hard discs and floppy discs
- Econet networks and printing
- sound and screen
- windows and memory
- mouse and keyboard
- applications and fonts.

Warning: You should always keep a saved copy of the configuration of your computer so that you can restore the configuration to its original state. See the section entitled *Saving and loading configurations* overleaf.

Starting Configure

To start Configure, double-click on its icon in the Apps directory display.

The icon appears on the icon bar. Open the Configure window by clicking on the Configure icon on the icon bar.



To open any of the Configure option dialogue boxes, click on the relevant icon. For example, to change the sound system configuration, click on the sound icon. The table below shows the icons to choose to carry out specific configuration tasks:

To set the:	Choose
Disc drive configuration	Discs or Floppies
Network configuration	Net
Printer configuration	Printer
Sound configuration	Sound
Monitor configuration	Screen
Window behaviour	Windows
Memory allocation	Memory
Mouse gearing	Mouse
Keyboard rate	Keyboard
Application start-up	Applications
Font configuration	Fonts

Saving and loading configurations

You should always keep a copy of your own configuration file so that if you lose your configuration you can easily and simply restore it. The configuration can be lost (or partly lost) by

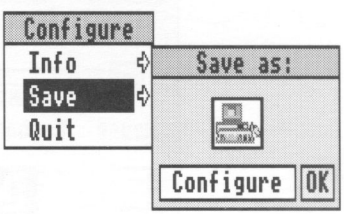
- the computer's internal battery failing
- using one of the special power-on reset combinations
- using an unwise *Configure command
- changing Configure without remembering your initial settings.

To save a configuration:

1 Press Menu on the Configure icon on the icon bar.

2 From the **Save** option display the **Save as** dialogue box, showing the special Configure icon.

3 Type in the filename you want, and save it by dragging the icon to a directory display. Keep a copy on floppy disc in a safe place.



You may also find it convenient to save more than one configuration; perhaps your computer is used by someone else who prefers a different setup from you.

You should keep your configurations on a floppy disc and keep them in a safe place. If the configuration in your computer is lost for any reason (when the CMOS RAM is cleared by a Delete power-on for instance) you will need to restore your configuration settings from disc.

Restoring a configuration

You can restore a configuration by dragging a previously saved configuration file icon onto the Configure icon on the icon bar. However it is simpler to just double-click on the configuration file.

What is in a configuration file?

Configuration files record only those features that you can set using the Configure application, but not the aspects of your computer's configuration that can be changed using the Command line. You should keep a separate note of changes you make to the configuration via the command line. For more information about commands available from the command line, read the chapter entitled *Accessing the command line* on page 127.

The configuration file may prove particularly useful if you are running an application that uses a large proportion of the computer's memory. Such an application's documentation should contain advice about how to change configuration details so as to release as much memory as possible, but this may produce a configuration that, while it is useful for a particular application, may not suit your usual requirements.

You could therefore save several configuration files, each optimised to a particular application or way of working that you could use whenever necessary.

Quitting Configure

To exit from Configure, click Menu over the Configure icon, and select **Quit**. You can also close the Configure window, leaving the program running, by clicking on the Close icon. If you do this, the window can be re-opened by clicking on the Configure icon.

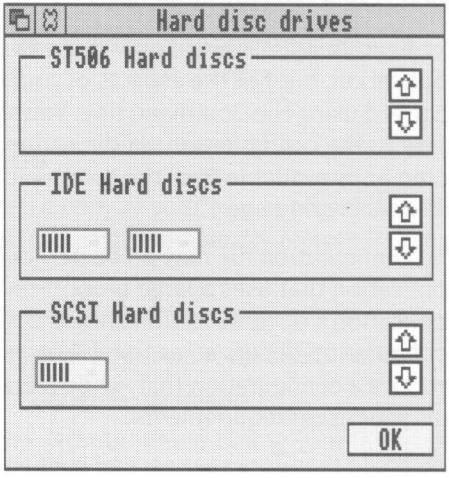
The configuration windows

The configure windows use some special conventions:

- When you click on the single righthand arrow a menu is displayed. You can also click Menu to display the menu.
- When you type a number or word into a box, make sure you always press Return, otherwise your typing will not be remembered by the computer.

Discs

Click on the up and down arrows to change the number of hard disc drives you have in your computer.



You can have:

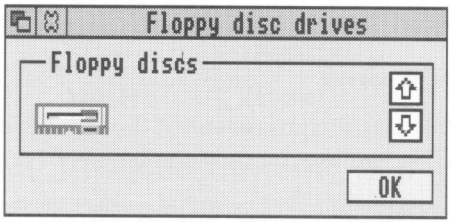
- up to two ST506 hard discs
- up to two IDE hard discs
- up to four SCSI hard discs.

Usually your computer will only support one type of hard disc (ST506, IDE or SCSI). To find out which type of hard disc your computer has (if any) refer to your *Welcome Guide*.

When you have selected the number of hard discs, click on **OK** to make the changes. Do not select a different number of hard discs from those actually in your computer as this may cause problems.

Floppies

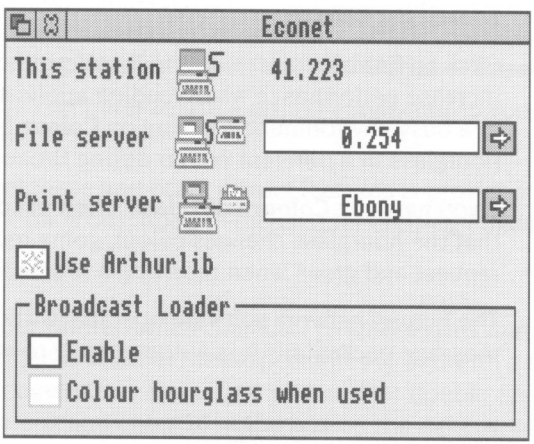
Click on the up and down arrows to change the number of floppy drives you have so that they reflect the number in your computer. RISC OS supports a maximum of four floppy disc drives.



When you have selected the number of floppies, click on **OK** to make the changes. Do not select a number of floppies different from that actually in your computer.

Net

This option is only available if you are connected to an Econet network.



This station

This gives the Econet station number of your computer. The number before the dot is the network number, common to all computers on your network. The number after the dot is the station number of your computer; it is set by your network manager.

File server

This sets the file server (by number or name) that will be selected by default when you click on the Econet icon bar icon, in order to log on to an Econet network.

Display the list of possible file servers by clicking on the right arrow. Click on a server name to select it.

Print server

This sets the printer server (by number or name) that will be selected by default when you use the printer manager to print to a remote printer on Econet.

Display the list of possible printer servers by clicking on the right arrow. Click on a server name to select it.

Use ArthurLib

If this box is starred, the library directory $.ArthurLib is selected after log on. If this box is not selected, then the library directory $.Library is used. Your Econet network manager will tell you which option to use. This option is not set immediately; the computer has to be reset before this option takes effect.

Broadcast Loader

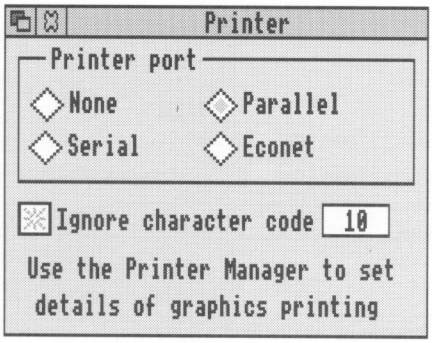
Click on **Enable** to activate the Broadcast Loader. The Broadcast Loader is used to increase performance when loading application software from Econet file servers in a busy environment. Clicking on **Colour hourglass when used** displays the hourglass in a different colour during Broadcast Loader operation.

If you have the **Colour hourglass when used** configuration option set, you will see that the hourglass changes colour, going red when re-broadcasting an Econet request and green when receiving a rebroadcast.

The Econet network software operates without you having to take any actions. If a message packet fails it is automatically re-requested.

Printer

This dialogue box sets up the basic printer port configuration.



Printer port

This sets the type of printer connection that you are using. It can be set as follows:

- **None** tells the computer that no printer is connected.
- If you have a printer connected directly to your computer, it should be connected via the serial or parallel port: your printer manual will tell you which to use. The Printer port should then be set to **Serial** or **Parallel** accordingly.
- **Econet** tells the computer to use a printer connected to your Econet network (if you have one).

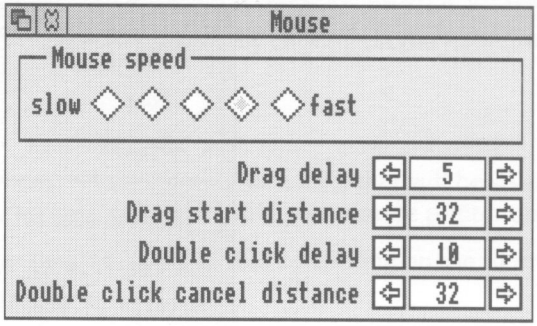
Extensive control of these and other printer features is provided by the Printer Manager. Its operation is described in the chapter entitled *Printing* on page 61.

Ignore

This option tells your printer which character to ignore. This may be necessary because printers differ in whether they expect lines to end with a linefeed character (ASCII 10) or a carriage return. If you find your printer double-spaces all text, then click on the **Ignore** box and enter 10 in the box on the right. If, on the other hand, your printer produces overprinted lines, then click in the **Ignore** box to remove the star.

Mouse

This dialogue box sets up the mouse configuration options.



Mouse speed

This option controls how fast the pointer moves as you move the mouse.

Mouse speed can be set from slow to fast. The faster the speed set, the quicker the pointer moves around on the screen.

Drag delay is the amount of time you need to hold down the mouse button before the computer decides you are starting a drag operation. The default for this option is 5 tenths of a second.

Drag start distance is the distance you can move a mouse before the computer decides a drag has occurred. The default for this option is 32 OS units.

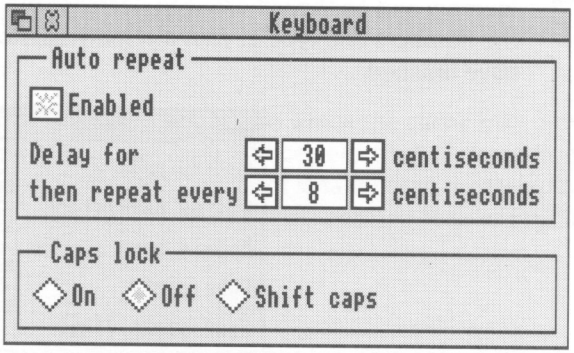
Double click delay is the time interval in which two successive clicks are interpreted as a double-click. The default for this option is 10 tenths of a second.

Double click cancel distance is the distance you can move the mouse during a double click operation before the double-click is cancelled. The default for this option is 32 OS units.

You should not configure your machine with values that vary greatly from these. Values that differ greatly from those above may give rise to very strange effects with some applications.

Keyboard

This dialogue box sets up the Auto-repeat and Caps Lock options for the keyboard.



Auto repeat

This option controls how quickly characters are repeated when you hold down a key on the keyboard.

To enable auto repeat, click on the **Enabled** box.

The **Delay for** rate is the time interval before a key starts to autorepeat. Use the arrow keys to adjust this rate. The default value is 32 centiseconds.

The **repeat every** rate is the time interval between the generation of auto repeat characters. Use the arrow keys to adjust this rate. The default value is 8 centiseconds.

Caps Lock

This option configures the state of the Caps Lock key when the computer is turned on.

Choose one of the following options by clicking over it:

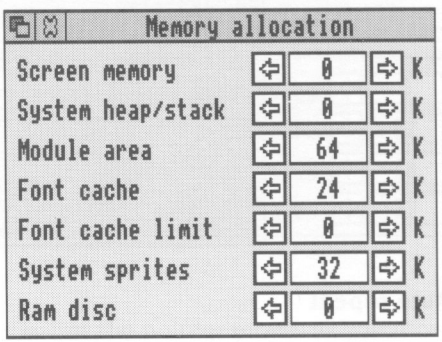
On configures Caps Lock to be on – when you type you will see uppercase letters.

Off configures Caps Lock to be off – when you type you will see lowercase letters.

Shift caps configure Caps Lock to be on – when you type you will see uppercase letters. However holding down the Shift key will produce lower case letters, which does not happen when **On** is chosen.

Memory

You can change the allocated memory by clicking on the right arrow to increase memory and on the left arrow to decrease memory. Alternatively you can click over the numbers and type in your alternatives. Remember to press Return when you have finished.



Screen memory

This reserves an area of memory for use by the screen. Normally you will not need to reserve any screen memory, since the memory required for the screen is taken automatically if it is available. However if you are low on memory and wish to reserve some for the screen, use this option. See the section entitled *Changing screen modes* on page 117 for information about the memory requirements for each screen mode.

System heap/stack

This reserves extra memory for the System heap over and above that needed initially by the system. We recommend that you leave this value at zero (0) unless you have a specific application that requires a different setting.

Module area

This reserves memory for modules that will be loaded from disc. This is extra on top of the area used by the ROM modules. We recommend that you leave this value at zero (0), unless you know that an application you will be using has a large number of RAM modules. Even then this will not be a problem unless you are running short of memory.

Font cache

This reserves an area of memory for use with outline fonts. If you never use outline fonts (you only use the System font) you can set this to zero. If you do use outline fonts you should set this to a small value (approximately 32KB). The size of the

font cache depends on the font characteristics and the screen mode you are using. However the font cache can grow to the size defined by the font cache limit option if the free memory is available. See the appendix entitled *Fonts and the Font manager* on page 235 for more information.

Font cache limit

This value specifies the maximum size to which the cache may grow. When the cache reaches this setting, old fonts will be selectively deleted from the cache as new ones are added. If this value is zero or smaller than the Default font cache then the cache will not expand. See the appendix entitled *Fonts and the Font manager* on page 235 for more information.

System sprites

This reserves an area for use by system sprites. This option can normally be set to zero. Some games may require a small sprite area (approximately 32KB).

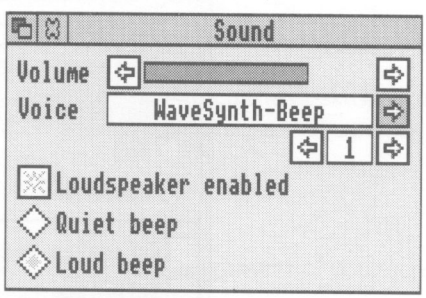
Ram disc

This reserves memory for a Ram disc, and if a non-zero value is set, the Ram disc icon appears on the icon bar. Unless you always use the Ram disc it is probably less wasteful of space to start the Ram disc from the Task manager when you want it.

These memory allocation options are not set immediately, the computer has to be reset before these options take effect.

Sound

This dialogue box sets the Sound configuration.



Volume

Sound volume sets the volume of the computer's speaker. This controls the overall level of sound output from any sound-generating activity, and determines the range within which the computer's beep will sound.

Voice

Voice sets the voice which will be output by the first of the computer's eight sound channels. Since this is the channel used by the beep, you can use this setting to change the type of beep to any of the installed voices. Repeated clicking on the left and right arrows cycles through the voices available. Click over the right arrow to display a list of installed voices. Choose a voice by clicking on it.

Loudspeaker enabled

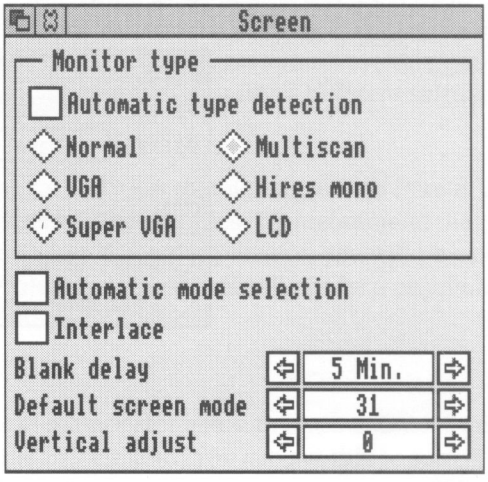
Clicking on Loudspeaker enabled switches the computer's own loudspeaker on or off. When switched off, sound may still be output via headphones or an external loudspeaker plugged into the socket on the back of the computer.

Beep

This sets the level of the computer's standard beep, used for giving warnings, drawing your attention to error messages, and the like. The 'meaning' of **Quiet** and **Loud** is determined by the value you have set for Sound volume: a Loud beep is not quite as loud as the highest value you have set the volume.

Screen

This window sets up the Screen configuration parameters



Monitor type

You can choose from four monitor types:

- **Normal** – for a standard monochrome or colour monitor.
- **Multiscan** – for a multiscan monitor.
- **VGA** – for a VGA-compatible monitor.
- **Super VGA** – for a Super VGA-compatible monitor.
- **Hires mono** – for a very high resolution monochrome monitor.
- **LCD** – for portable computers.

Additionally you can click on **Automatic type selection** if your computer can automatically detect monitor types.

For more information about monitors and the screen modes they can display, see the chapter entitled *Colours and screen modes* on page 115.

If you click on **Automatic mode selection**, the computer will automatically pick a mode that is compatible with your monitor type.

If **Interlace** is chosen, screen interlace is switched on. Interlace gives a better quality picture with some types of monitors and screen modes. Normally interlace is switched off.

Blank delay

This controls how long the interval is between the last key press or mouse movement and the screen blanking (turning off). Moving the mouse or pressing a key switches the monitor screen on again.

Note: There may be interference on the blanked screen if a sound is played while the screen is blanked out. This is nothing to worry about.

Default screen mode

This determines the screen mode in which the desktop starts up; it can be set to any of the values listed on page 216, but those that operate with most monitors are modes 12 (16 colours) and 15 (256 colours).

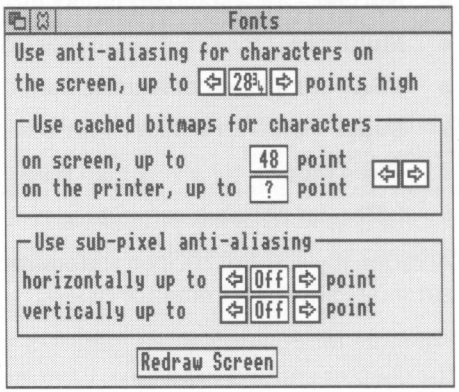
Vertical adjust

This allows you to adjust the vertical alignment of your screen. This is useful if the desktop is not centred on your monitor.

Click on the arrows to move the number between -4 and 3. -4 represents four lines down while 3 represents three lines up.

Fonts

This dialogue box allows you to change the font configuration.


Fonts
Use anti-aliasing for characters on
the screen, up to 28¾ points high
Use cached bitmaps for characters
on screen, up to 48 point
on the printer, up to ? point
Use sub-pixel anti-aliasing
horizontally up to Off point
vertically up to Off point
Redraw Screen

The Font manager uses a technique called *anti-aliasing* to improve the quality of fonts. This technique blurs the jagged edges of characters making them look much smoother. All character sizes are given in points. A point is equivalent to 1/72 of an inch.

Use anti-aliasing

Use the arrow keys to place an upper limit on the size of anti-aliased fonts. Fonts in larger sizes are usually printed without anti-aliasing. Larger fonts benefit less from anti-aliasing, and since an anti-aliased font occupies a lot more memory than a non-anti-aliased font, it is not worth displaying large fonts with anti-aliasing.

Use cached bitmaps

Use the arrow keys to specify the largest font size which is to be kept in the font cache as a bitmap. Fonts larger than this will be drawn from outlines directly to the screen without caching and without anti-aliasing. If this value is set high, and you are using a few large fonts – for headlines, perhaps – they may take up all the font cache, flushing out smaller fonts.

This parameter is relevant for the printer, especially if you are printing documents with a lot of text. Its ideal value depends on the screen mode, printer type and the printer resolution. For example, in mode 12, with an Epson FX-compatible printer printing at 240 x 216 dots per inch, values of 48 and 10 are used for the screen and printer respectively.

If you have one of the larger and more powerful RISC OS computers, or are printing at a high resolution, you may wish to increase the values of this parameter.

Use subpixel anti-aliasing

This controls a refinement of anti-aliasing in which four separate versions of each character are retained. This can have a beneficial effect on the quality of characters (on the screen) at small point sizes. However it is heavy on computing power and may result in unacceptably slow screen updates. Therefore this parameter should not normally be changed from its default value of OFF.

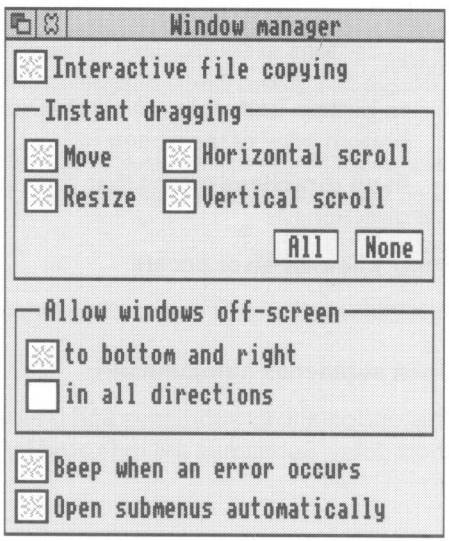
Redraw Screen

Clicking on this box redraws the screen using the values you have set up with this window.

If you want to understand more about how the Font manager operates you should read the appendix entitled *Fonts and the Font manager* on page 235.

Windows

This window is used to configure the way the desktop windows behave.



Interactive file copying

This option allows file copying to take place in the background, the normal way to use RISC OS. This option is normally left starred – enabling interactive file copying.

If you do not use Interactive file copying, the desktop cannot be used for other purposes while Filer copying operations are in progress.

Instant dragging

When set these options update the screen as a window is dragged, resized or scrolled. There are four possible states, any of which can be on or off. When these options are starred, the screen is updated instantly, when off, only a dotted outline moves until you have finished the drag. Using outline moves is usually quicker than instant updating.

- **Move** gives instant effects when you move a window around the screen.
- **Resize** gives instant effects when you resize a window.
- **Horizontal scroll** gives instant updating of the windows' contents when using the horizontal scroll bars.
- **Vertical scroll** gives instant updating of the windows' contents when using the vertical scroll bars.

Click on **All** to select all of these options and **None** to deselect them all.

Allow windows off-screen

Windows can be dragged off screen so that part of the window is not on the desktop. You cannot lose a window, since part of the Title bar is always visible on screen.

- **to bottom and right** means that you can drag windows off the righthand and bottom edge of the screen.
- **in all directions** means that you can drag windows off the screen in all directions.

Beep when an error occurs

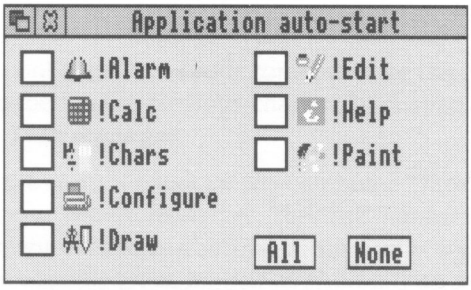
This causes a beep to sound whenever an error box is displayed on screen.

Open submenus automatically

This option allows submenus and dialogue boxes to display automatically after a short delay. Submenus are indicated by a righthand arrow on the menu.

Applications

This window allows you specify which applications, if any, will be started automatically when you switch on or reset your computer.



Click over the applications you wish to auto-start each time you switch on or reset the computer. Auto-started applications appear automatically on the icon bar. Click on **All** to auto start all the applications and click on **None** to remove auto-start from all applications.

You can also automatically start applications in another, more versatile, way with a Desktop boot file. See the chapter entitled *Desktop boot files* on page 109 for more details.

You cannot have a combination of Auto-start applications and a Desktop boot file. If you run a Desktop boot file, the Auto-start options will be ignored.

6 Fine tuning the configuration

To set the overall configuration of your computer, use the !Configure application described in the previous chapter. To change the configuration interactively, use the **Task manager**.

The Task manager is the control panel for the computer. Through it you can monitor and control your system resources. The Task manager differs from Configure in that Configure changes a setting permanently, while the Task manager can change settings on-the-fly for as long or as short a time as you want. All changes to the Task manager are 'forgotten' when the computer is reset.

'Tasks' include anything the computer is doing: running an application, controlling what appears on the screen, managing areas of memory, and running the Task manager itself.

The Task manager icon (the Acorn) is located at the extreme righthand end of the icon bar. It is used

- to control and monitor tasks and the use of the computer's memory
- as a means of access to the Command Line
- to enable you to start up your computer exactly the way you want, with specific applications running
- to leave the desktop
- to shut down your computer before switching it off.

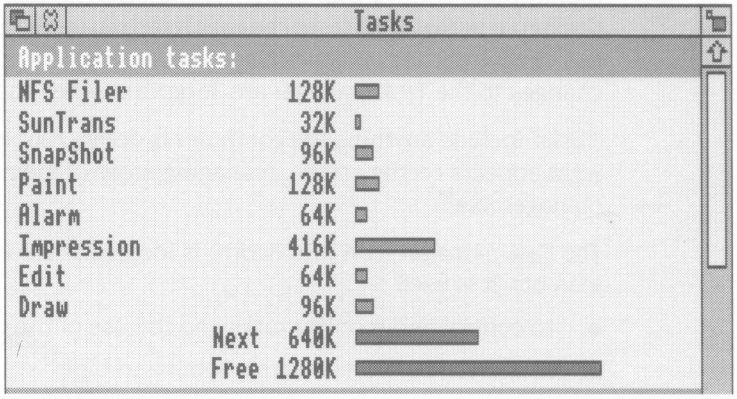
Monitoring and controlling tasks and memory

Clicking on **Task display** on the Task menu (or simply clicking on the Task manager icon itself) produces a window containing details of the current tasks and the use of the computer's memory. You will need to use scrolling and/or resizing to see all of this display. Memory usage is presented in the form of a number and a bar graph. When the bar is displayed in red, you can alter it by clicking Select within a bar, or by dragging the end of the bar to the value you want. The operating system imposes some restrictions on the amount of memory you can give to each item. The display's parameters are shown in several distinct sections:

- Application tasks
- Module tasks
- System memory allocation.

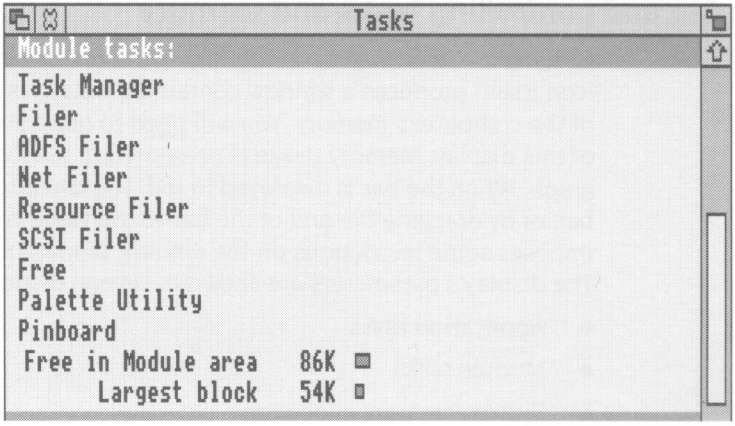
Application tasks

At the top, entitled **Application tasks**, there is a list of the tasks which are currently running, and how much memory they are using. The areas marked **Next** and **Free** indicate how much memory will be allocated by default to an application when it starts up, and how much free memory is remaining in the system. These two values can be changed. Most applications override the values allocated to **Next** and **Free**, giving them the new values they need. You may find it useful to allocate more space to **Next** before opening a new **Task window**; since the computer does not know what the task is going to be, it cannot automatically transfer space from **Free** to **Next**.



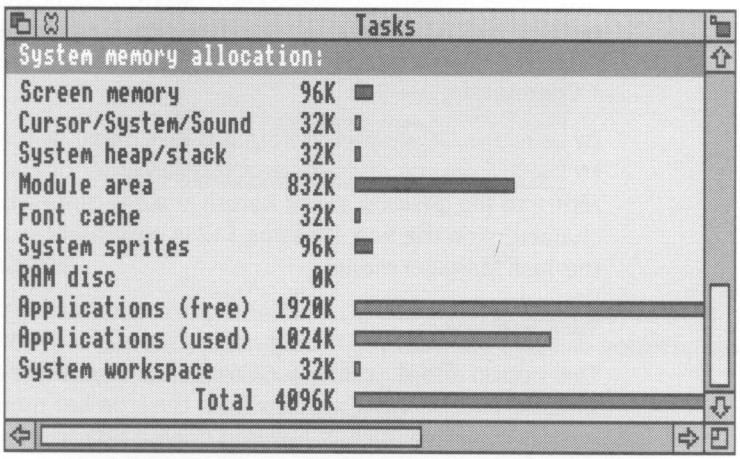
Module tasks

The next section – **Module tasks** – lists all tasks which are running as relocatable modules (applications which run as if they were extensions to the operating system), together with the amount of free memory in the module area.



System memory allocation

The third section of the display – **System memory allocation** – shows how the computer's memory is partitioned. Some of the values in this section can usefully be changed. For example, when using a large number of fonts the system may begin to run rather slowly; increasing the area allocated to the font cache will speed things up. However, if you are using any fonts besides the system font, you should not gain space for other tasks by reducing the font cache to zero. (For more information on fonts and the font cache, see page 99.) A second candidate for reduction is the **System sprites** memory, since this space is not normally used by the desktop.



Forcing tasks to quit

The Task manager can be used to force any of the tasks from the first two sections of the display to quit:

1 Position the pointer over the entry for the task you wish to quit and click Menu.

2 Move to the submenu entry for the task, and click on **Quit**.

The task will quit, and the memory it was using is freed. Although some programs (including Edit, Draw and Paint) will warn you if there is some work you have not saved, not all programs do so; this command should therefore be used with caution, as a last resort to force termination of a program that has got out of control.

The task display is updated dynamically as applications are running. This allows you to monitor the state of the system.

Command line options

The following options are used to access the command line. Most users will not normally need to use the command line. For more information on the following options, see the chapter entitled *Accessing the command line* on page 127.

New task

To start a new task, move to the **New task** submenu of the Task menu. This produces a box into which you can type any Command Line command. If the command causes a task that is not a desktop application to run, any output from the task will be displayed in a new window; other tasks will be suspended until this task has completed. If the task is a desktop application, starting it from the **New task** submenu is equivalent to double-clicking on the application.

* Commands

By selecting *** Commands** from the Task menu, you can enter Command Line Mode. A * prompt appears, and you can enter operating system commands. To return to the desktop, press Return at a * prompt without entering any other characters on the line. Pressing F12 is equivalent to selecting *** Commands** from the Task Manager menu.

Task window

This option allows you to use Command Line mode in a window. To open the window, choose **Task window** from the icon bar menu. You can have more than one task window open. When you open a task window, you will see the * prompt. You can now enter operating system commands in the window. Using the Task window is explained fully in the chapter entitled *Accessing the command line* on page 127.

Exit

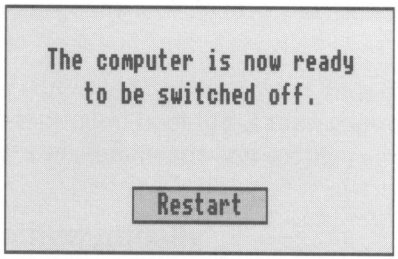
Clicking on **Exit** causes the desktop and all tasks to be closed down and replaced by the command line. The desktop may be restarted by typing `desktop` at the * prompt, and then pressing Return.

Starting up your desktop 'world' automatically

You may find that you want at least some applications running every time you use your computer. If you are connected to an Econet network, you probably want to log on to that every time you switch on, too. You can do things like this using the **Desktop boot** option. Using the Desktop boot option is explained fully in the chapter entitled *Desktop boot files* on page 109.

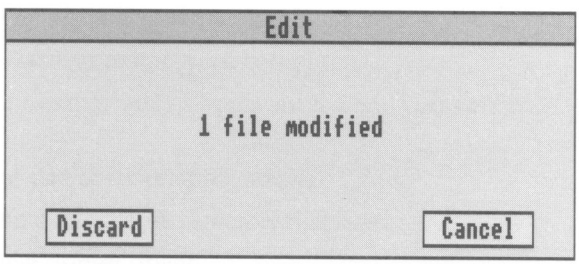
Shutting down and switching off the computer

The **Shutdown** option causes the desktop and all tasks to be closed down. You are logged off any network and file servers you were logged into and your disc drive(s) are parked so that it is safe for you to switch your computer off. This is more important if you are using a hard disc than if your computer only has floppy disc drives. After you have clicked on **Shutdown**, the computer then tells you that it is ready to be switched off. If you want to start using the computer again straight away, click on the **Restart** button.



Warning messages

As you shut down the computer, RISC OS checks your computer to see if you have saved all of your currently open files. If it finds a file that has not been saved you will see a message much like this one from Edit.



If you don't want to save the file, click on **Discard**. The file's contents are lost and the shutdown procedure carries on. If you want to save the file, click on **Cancel**. This stops the shutdown procedure so that you can save the file. After saving the file, start the shutdown again by clicking on the **Shutdown** option.

7 Desktop boot files

When you first switch on the computer, the desktop is empty waiting for you to start work. However by using a **Desktop boot** file you can tell the computer to start up certain programs and to set certain options each time you start up the computer. For instance you could start up Edit and Alarm, and then log onto your file server automatically.

These actions can all be controlled by the desktop boot file. The following section shows you how to make a desktop boot file. It then goes on to show you how to modify it to include your own commands and scripts.

Starting up your desktop 'world' automatically

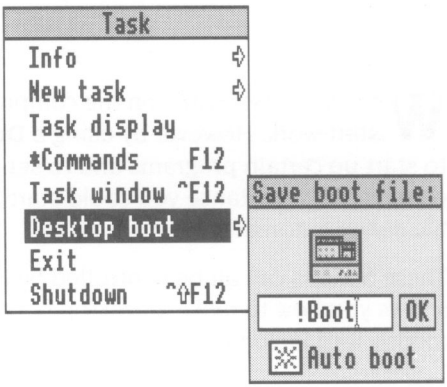
The desktop boot file takes a snapshot of the way your desktop looks and stores this snapshot in a file. When you next start your computer, the computer automatically runs the desktop boot file. This then changes the desktop to be exactly like the desktop you saved in the desktop boot file.

To create a desktop boot file, follow these steps:

1. Make a list of exactly what you want your desktop boot file to do.
2. Save any files you are working on.
3. Press Ctrl-Break to restart your computer.
4. Set up your desktop just as you want it when you switch on. This might include:
   - starting one or more applications
   - opening one or more directory displays
   - loading a printer driver
   - logging on to a network.

It is important that you do not do anything additional to this process, as otherwise your boot file will become cluttered with instructions you do not really want: hence the need for planning. For example, opening a window for a directory containing applications will tell the computer where to find those applications, and these instructions will also be incorporated into your boot file.

5 When you are ready, press Menu over the Task manager icon (the Acorn) and move to the **Desktop boot** option and display its dialogue box, which looks like this:



6 If the box next to the words **Auto boot** does not contain a star, click on it so that it does. This ensures that the file is run each time the computer is started (for the experts, it performs a *Opt 4 2 command, a *Configure Boot command and a *Configure Drive command).

7 Save the file as !Boot in the root directory of your hard disc if you have one, or as !ArmBoot if your home directory is on the Econet network. If your computer has only floppy discs, save the file as !Boot in the root directory of a floppy disc. To run the desktop boot file you should insert this floppy disc before you switch on your computer. If the applications on the desktop you are saving have been loaded from more than one disc, the computer will remember the names of the discs and prompt you to insert them when necessary.

If you want to run the !Boot file without displaying the directory in which the Boot file is stored, save the !Boot file by defining a specific pathname in the Save as box.

Now each time you switch on or reset your computer, your desktop will be automatically configured.

Applications written before RISC OS 3 was released cannot automatically be saved using the Desktop Boot option in this way. However, you can still add lines to your desktop boot file by hand.

Inside the desktop boot file

This section looks at the typical lines found in a desktop boot file. You don't need to know these details to **use** a desktop boot file, but an understanding will be useful if you decide to **edit** your desktop boot file by hand.

The following example uses typical values; however these may be different with your computer.

WimpSlot -next 640K

This gives the amount of memory allocated to the next application, usually 640KB.

ChangeDynamicArea -FontSize 0K
ChangeDynamicArea -SpriteSize 0K
ChangeDynamicArea -RamFsSize 0K

These give the amount of extra memory reserved for Fonts, the Sprite cache and the RAM disc. These are normally set by the Configuration application, Configure. However if you change them with the Task manager before saving your boot file, those changes will be saved here.

WimpMode 20

This tells the desktop which screen mode to use.

Desktop SetPalette ...

This tells the desktop which set of colours to use. This reflects the settings chosen using the Palette.

net:logon :Business Steve

This line logs Steve onto the file server 'Business'.

Filer_OpenDir adfs::HD.$ 2 712 712 188 -sn -si

This line causes the root directory of the disc HD to be displayed when the desktop starts up. The numbers define the position of the display on the desktop and the parameters -si and -sn define the format: small icons and sorted by name.

The position of directory displays on the screen is given in OS units and, the display type given with one or more of the following parameters:

- –li, large icons
- –si, small icons
- –fi, full information
- –sn, sort by name
- –st, sort by type
- –ss, sort by size
- –sd, sort by date.

Filer_Boot Resources:$.Apps.!Alarm

This line defines a file stored in a directory. It causes the file's location and sprite to be stored in memory so that when the sprite is looked at again, this information does not have to be read in again.

You can hand edit the desktop boot file to add Filer_Boot lines. Adding lines for files in frequently-used directories will speed up opening these directories (the first time) but will make starting up or resetting the computer take longer.

Run resources:$.Apps.!Edit

This runs the Edit application so that its icon appears on the icon bar.

You can hand edit the file to run any applications in this way.

Set Edit$Options F13 B1 W8 H12 NTrinity.Medium

This sets up some configuration options for the Edit application. These options are saved automatically when you save your desktop boot file.

You can also add configuration options to the file. Details of configuration options for each of the applications in the application suite can be found in the *Applications Guide*.

It is possible to have configuration options for applications that are not loaded. These configuration options are kept in memory and used when the relevant application is loaded.

Editing the desktop boot file

It is fairly easy to edit your desktop boot file so that it performs exactly the actions you require.

To view the desktop boot file, start !Edit and then drag the desktop boot icon onto the Edit application.

Most of the applications in the application suite have a set of parameters that tell the application how to behave. These parameters can be saved using the Desktop boot option and then edited using the Edit application.

For example, if you use Edit and perform a desktop save, the following lines could appear within the desktop boot file:

```
Set Edit$Options F8 D NCorpus.Medium
Run resources:$.Apps.!Edit
```

The line beginning `Set...` tells Edit to display the text colour in dark blue, leaving the background white, switches word wrap on, and sets the font to Corpus.Medium.

The line beginning `Run...` starts the application. So if you were to delete the Run... line, Edit would not start but its option parameters would be read in and stored. Now, when you double-click on Edit, it will automatically start with a blue Corpus.Medium text.

Occasionally you might want to edit out the Run... line so that the application is not started. This will leave the Set... line which contains the parameters you use with your application. Now, whenever you start your application, it will use the parameters that are in the appropriate Set... line. Editing your file in this way will let you set up parameters for your applications without actually starting them.

Most applications have these option parameters and they can all be saved in your desktop boot file.

You should be careful when experimenting with desktop boot files. It is very easy accidentally to save a desktop boot file and in doing so wipe out your current desktop boot file. Take a copy of your current desktop boot file before you start experimenting, or save the resultant desktop boot files with a name other than !Boot. You can then use Edit to cut and paste relevant part of the files into a new !Boot file.

Any edit file can be made a desktop boot file simply by giving it the file type Desktop (Use the Set type option in the File menu), naming it !Boot and placing it in the root directory.

Adding other parameters to the Boot file

You can add many other types of commands to your Boot file; however most of these commands apply only to the command line interface. However to show you what is possible you may want to add the following two lines to your boot file.

```
SetMacro CLI$Prompt <Sys$Time> *
```

This sets the command line prompt to display the time. Add it to the bottom of the boot file, restart the computer, press F12 and have a look.

For more information about how to make boot files containing parameters that affect command line operations, read the chapter entitled *Notes for command line users* on page 133.

Overriding the CMOS RAM settings

When you run a !Boot file that has been created by the Desktop boot menu option, it can override some CMOS RAM settings that are set by the !Configure application. This can cause confusion. The following settings are affected:

- Font cache size
- Sprite cache size
- RAM disc size
- Desktop screen mode
- Auto starting of applications.

8 Colours and screen modes

The **Palette** allows you to set up the colours used by the desktop, and the screen modes used to display the desktop.

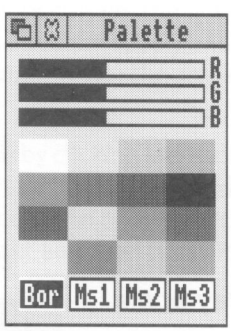
The **Palette icon** is located on the right of the icon bar.

It is used for

- setting the palette (the colours used on the desktop)
- inverting the screen grey scales
- changing to a different screen mode
- saving the current palette
- setting the desktop to its default values

Setting desktop colours

The palette defines the set of 16 colours that will be used by the desktop, and the colours of the pointer and the screen border. Each colour is defined in terms of the intensity of the red, green and blue colour "guns" in your monitor. For example, setting all three guns to zero intensity produces black, and all three fully on produces white.



To see the current setting, click on the palette icon. The palette window then appears. The 16 desktop colours are shown in the middle section of the window. You can check the precise setting of a colour by clicking on it. The logical number associated with the colour is displayed, and the sliders at the top of the window

show the red, green and blue intensities. To change a setting, position the pointer within one of the sliders, and drag it to the level you want. The colours on the whole screen reflect the changes as you make them.

You can use the palette to change the border and pointer colours, by clicking on one of the boxes at the bottom of the window and adjusting the sliders as above. The boxes are:

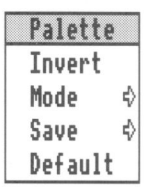
- **Bor** to set the screen border colour
- **Ms1** to set the pointer's outer colour
- **Ms2** to set the pointer's inner colour
- **Ms3** to set the alternative pointer colour (used for certain special pointers).

If you change the colour balance of colours 0 (white) or 7 (black), the grey tones 1-6 are changed to match when you release Select. However, if you then restore colour 0 or colour 7 by dragging the sliders back to their original positions, you will find that the grey tones are not identical to the ones you started with, and in particular, the main desktop background colour no longer matches the border. To restore the original palette, choose **Default palette** on the palette's icon bar menu.

When you have finished changing the palette, click on the Close icon in the palette window. If you want to save the changes permanently, see *Saving the palette options* overleaf.

Other Palette functions

Click Menu over the Palette icon to display the menu.



Inverting the grey scale

The first 8 colours of the palette (colours 0 to 7) are normally used to provide a scale of grey shades running from white to black. You can invert them by clicking on **Invert**. Inverting the colours causes light shades to become dark, and vice-versa, so white is changed to black, light grey to dark grey, and so on.

Changing the screen mode

Change the screen mode by displaying the **Mode** submenu and clicking on the mode you wish to use. If the mode number is not displayed, move to the bottom of the menu, type in the mode number and then press Return.

Screen modes and monitor types are dealt with in detail in the next section.

Saving the palette options

If you change the desktop colours, you may wish to save them for later use. To do this, move to the **Save** submenu. You can then save the file by dragging the icon to a directory display.

To restore the palette from a file, either double-click on a palette file, or drag the file onto the palette icon on the icon bar. Palette files are indicated by a palette icon in the directory display.

The current palette is also saved when you create a desktop boot file, as described in the chapter entitled *Desktop boot files* on page 109.

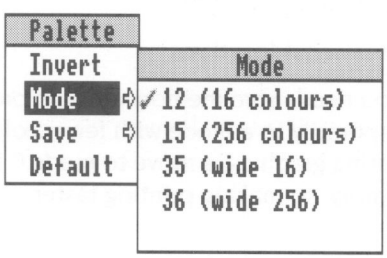
Setting the palette to its default values

A default palette is built into the computer. To set the current palette to this default, click on **Default**.

Changing screen modes

RISC OS can display its desktop in different **modes.** Modes change the size of the desktop display and the number of colours the desktop can display. For example, mode 12 can display 16 colours simultaneously and mode 15 displays 256 colours. Mode 16 can display more information on the screen than mode 12, but the text size is smaller.

You can change the screen mode by clicking Menu on the **Palette icon**, and moving to the **Mode** submenu. A list of standard modes is displayed. Either choose one by clicking on the menu item, or move the pointer to the bottom menu item, type in the number of the mode you want and then press Return.



Mode versus performance trade-offs

For each monitor mode, there is a compromise between the graphics resolution, the number of colours, the display refresh speed, speed of processing and memory usage. Generally, the greater the graphics resolution or number of colours, the slower the screen displays and more memory is used.

The modes with larger graphics resolution generally give better quality graphic displays, while modes with greater OS (operating system units) resolution allow you to fit more on the screen.

Suggested screen modes

The modes available depend on the configured monitor type and the model of computer.

A 16-colour mode is most commonly used for 'everyday' use. Depending on your monitor type you should use different default settings.

For standard colour or monochrome monitors

Mode 12 is most commonly used. Mode 35 may provide a useful alternative, as it uses more of the monitor's border. Some users may find that it loses some pixels at the edges of the screen, so it may not be suitable.

Mode 16 provides more pixels horizontally than mode 12 so that 130 columns of text can be displayed in the window. However, you may find it harder to read than mode 12.

Multi-frequency (multiscan) monitors

In addition to modes 12, 16 and 35, these monitors can also use mode 20 and mode 27. Some users find that mode 27 may flicker less, as it has a higher refresh rate. Mode 39 allows more information to be displayed on the screen and mode 31 may also be used on some monitors.

VGA and Super VGA monitors

Mode 27 is most commonly used on VGA monitors. For Super VGA monitors, mode 31 is most commonly used.

Other considerations

If you need more memory or more processor power, than you can change temporarily to a mode with fewer colours or a smaller picture. For instance, when printing graphics, a move to mode 0 (or mode 25 for a VGA monitor) can release memory, so making printing faster.

If you use a VGA or multi-frequency monitor in the higher resolution screen modes, your computer's performance may suffer unless you change the settings in the **Fonts** window of the **Configure** application. Anti-aliasing should be set to at least 24 points high, and cached bitmaps on screen set to at least 48 points high. It may also be worth increasing the size of your font cache.

Further information

A full list of screen modes with full information about their individual characteristics is contained in the appendix entitled *Screen modes* on page 215.

You must check your *Welcome Guide* to see which monitor types and screen modes are valid for your computer hardware.

9 System applications

Your applications discs contain the system applications **!System**, **!Scrap** and **!Fonts**. !System and !Scrap are essential to allow applications to run on your computer. !Fonts is used to store any additional fonts you may buy.

!System

!System is used as a standard location in which to keep relocatable modules issued to replace or to supplement existing parts of the operating system. Initially !System only contains the module BASIC64 used by SciCalc, the scientific calculator.

When you buy additional applications for your computer you may find that extra modules are supplied. The documentation supplied with the application will tell you how to combine them with any modules you already have.

Modules kept in !System are loaded as required by applications; you will not need to take any special action.

Where to keep your !System

Hard disc users should always store !System in the root directory ($), so that !System is seen by the operating system as soon as the hard disc is accessed.

Floppy disc users should keep !System on a special floppy disc that should be inserted and clicked on whenever you restart the computer. This disc can also contain other system files such as boot files.

Network users who are booting their computers from a network or running applications stored on a file server can store !System on the file server. See your network manager for details.

!Scrap

!Scrap gives the computer somewhere to store temporary files. Applications often use temporary files during copying and saving; however these files are always erased when they are no longer needed.

Where to keep !Scrap

Hard disc users should always store !Scrap in the root directory ($), so that !Scrap is seen by the operating system as soon as the hard disc is accessed.

Floppy disc users should keep a copy of !Scrap on every floppy disc that contains an application. This may seem wasteful of disc space, but Scrap only takes up minimal space when not in use. Also keeping !Scrap on every disc will eliminate the need for frequent disc changes as long as you are using the !Scrap on the current floppy disc; always double-click on the new !Scrap after you change discs.

Network users who are booting their computers from a network or running applications stored on a file server can use a !Scrap stored on the file server. See your Network Manager for details.

!Fonts

RISC OS contains a range of fonts stored permanently inside the computer. In addition to these some additional fonts are also held on disc in the !Fonts application.

Fonts are used not only for screen displays but also by all printers, except for PostScript printers such as the Apple LaserWriter which have their own built-in fonts. The fonts are controlled by a part of the operating system called the Font manager.

Instead of bitmaps, Acorn's Font manager uses outline fonts (like Draw files), where only the outline of each character is stored. When you request a font, the computer loads the outline font, scales it to the size you want, and fills in the outline.

To display a list of available fonts, open an !Edit document. Press Menu, move the pointer to the **Display** submenu, and from there to the **Fonts** submenu. This will show a list of available fonts.

Where to place !Fonts

Hard disc users should always store !Fonts in the root directory ($), so that !Fonts is seen by the operating system as soon as the hard disc is accessed.

If you do not have a hard disc drive, you should copy !Fonts to a special floppy disc and use this disc to hold all your fonts.

Adding fonts

If you want to add more fonts to your system you can purchase font-packs from your supplier. Additional fonts are placed within the !Fonts application that was supplied on your Applications discs.

For more information, see the section entitled *Using fonts* on page 57.

Upgrading your old !Fonts application

If you have been using an 'old' !Fonts supplied with an earlier version of RISC OS you must upgrade your application by copying the font directories from the old !Fonts into the new !Fonts.

Because RISC OS now contains the Corpus, Homerton and Trinity fonts in ROM, these fonts should **not** be transferred across to the new !Fonts. Additionally, if you already have the Selwyn and Portrhouse disc-based fonts, do **not** transfer these across to the new !Fonts, as the latest versions of Selwyn and Portrhouse are already included.

To move font directories to the new !Fonts, follow these steps:

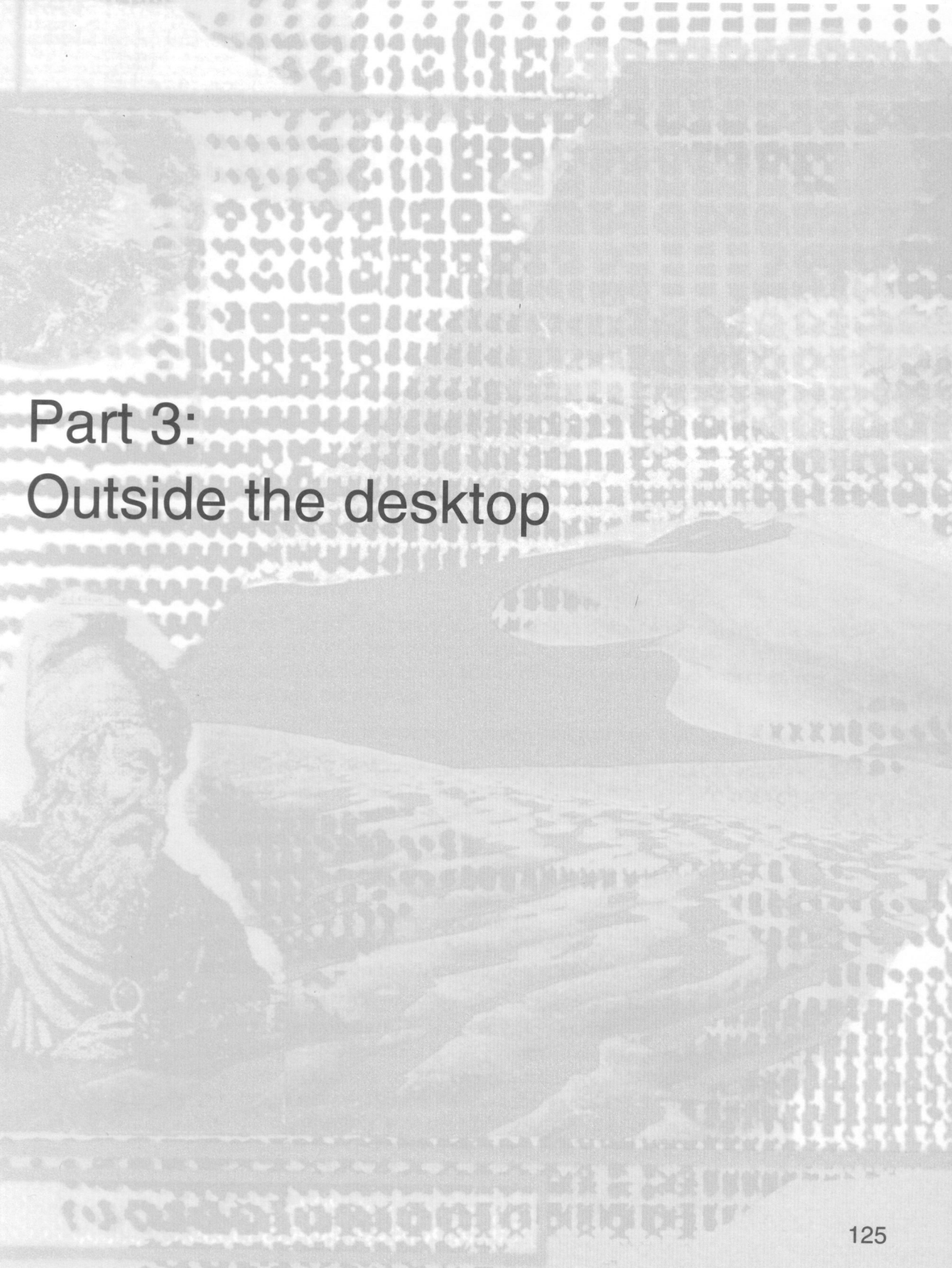
1. Open the application directories for both the old and the new !Fonts by holding down shift and double-clicking on the Fonts icon.

   In the old !Fonts you will see various directories. You must only copy the directories that contain the fonts. Do not copy anything else.

   Remember, do not copy the Corpus, Homerton, Trinity, Selwyn or Portrhouse font directories.

2. Copy the remaining font directories into the new !Fonts application.
3. Close the !Fonts applications and then double-click on the !Fonts icon. The disc fonts will now be available.

   You should also stop using the old !Fonts.



Part 3: Outside the desktop

10 Accessing the command line *

Most of you will use the RISC OS desktop for almost all of your computing tasks. However occasionally you may venture into the world of the command line.

*

The command line is very different from the desktop. Gone are the windows, icons and menus. These are replaced by a set of single line commands that always start with a star, the Star Commands (known as * Commands).

One of the main reasons for using the command line is to write scripts. Scripts are small programs that help you control the computer. The command line is also used to issue operating system commands from BASIC.

Accessing the command line

There are four different ways of accessing the command line. Two of these allow you to do so within the desktop itself, one suspends the desktop temporarily and one quits the desktop entirely. Additionally you could set up your computer so that it never starts the desktop.

The command line is accessed from the Task manager icon bar menu.

The option **New Task** gives you a small box into which you can write a single * command such as Cat (Cat will give you a list of files in your current directory). Type in the command then press Return. The result will be displayed in a window on the desktop.

A more useful window into the command line is given by the **Task window** option. This displays an Edit-like window into which you can type commands. At the top of the window is a * (the command line prompt) and the caret. You can now type a command; try Cat again. The Task window behaves just like any other desktop window. Its menu options are explained later in this chapter.

To halt the desktop temporarily and replace it with the command line interface, click on ***Commands** (or press F12). A line will appear at the bottom of the screen, containing a * (the command line prompt) and a flashing line (the cursor). You can now type a command: try just typing a full stop, (short for the command *Cat), followed by Return. The lower part of the screen will display a list of the files in your current directory, with the * prompt at the foot of the screen again. Now press Return again: the desktop will reappear, looking just as it did when you saw it last.

To leave the desktop more 'permanently', choose the **Exit** option. The screen will go blank and a * prompt will appear. **However, if you do this, any work on the desktop that you have not saved will be lost.**

Command line to desktop

The star (*) prompt indicates that you are in command line mode and that the computer is expecting a command to be typed. Note that command line mode is referred to as 'Supervisor' on all screen displays.

The commands in this guide are always preceded by a star. The star is provided as a prompt in command line mode, so you do not have to type it (though it does not matter if you do: any extra stars are ignored). However, if you type a command following some other prompt (at the BASIC > prompt, for example), you must precede it by a star so that the computer knows how to interpret what follows.

To start the desktop from the command line, type `desktop` at the * prompt.

Command line to BASIC

Enter BASIC by typing `*BASIC` from the command line. The prompt will change from * to >. To confirm that you are in BASIC, type in the following one-line program (using capital letters):

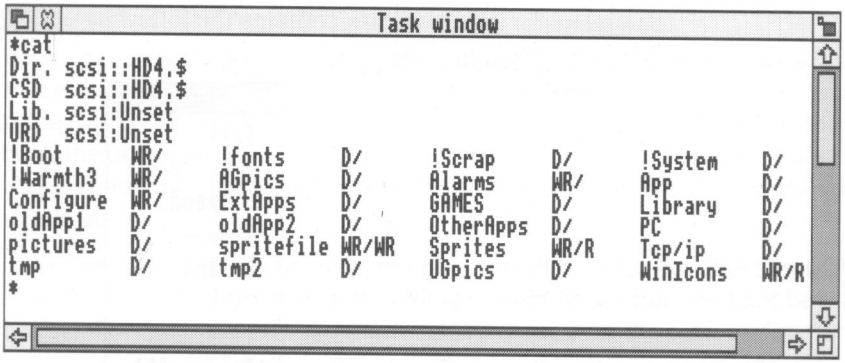
```
FOR N=1 TO 20: PRINT "HELLO": NEXT N
```

This will cause the word `HELLO` to be printed twenty times. Leave BASIC by typing `QUIT`.

For more information on starting BASIC, turn to the appendix on BBC BASIC on page 229.

Using the task window

The task window allows you to use the command line within a window. To open a task window, choose **Task window** from the Task manager icon bar menu. You can have more than one task window open. When you open a task window, you will see a * prompt. You can now enter commands in the window just as if you were using the command line itself.


Task window
*cat
Dir. scsi::HD4.$
CSD scsi::HD4.$
Lib. scsi:Unset
URD scsi:Unset
!Boot WR/ !fonts D/ !Scrap D/ !System D/
!Warmth3 WR/ AGpics D/ Alarms WR/ App D/
Configure WR/ ExtApps D/ GAMES D/ Library D/
oldApp1 D/ oldApp2 D/ OtherApps D/ PC D/
pictures D/ spritefile WR/WR Sprites WR/R Tcp/ip D/
tmp D/ tmp2 D/ UGpics D/ WinIcons WR/R
*

The major advantages in entering commands in a task window instead of at the command line prompt are that:

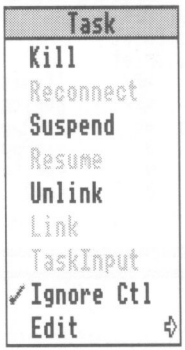
- Other applications continue to run in their own windows while you run the task (this does mean, though, that the task may run more slowly than it would using other methods of reaching the command line).
- Commands that you type, plus the output (if any), appear in a conventional Edit type window, and may therefore easily be examined by scrolling up and down in the usual way. When you type into the window, or when a command produces output, the window immediately scrolls to the bottom of the text. Anything you type in is passed to the task, and has the same effect as typing whilst in command line mode. You can change this by **unlinking** the window: in this case, anything you type in alters the contents of the window in the same way as any other Edit window, even while a task is running. Any output from the task is appended to the end.

You can also supply input to a task window by selecting some text from another text file and choosing **TaskInput** from the task window menu.

You cannot use graphics in a task window. The output of any commands that use graphics will appear as screen control codes in the task window.

The task window is controlled by Edit, so don't be surprised if you see the Edit icon on your icon bar.

The menu for a task window contains the following options:



Kill stops and destroys the task running in the window.

Reconnect starts a new task in the window, allocating memory to the task from the Task manager's **Next** slot.

Suspend temporarily halts the task running in the window.

Resume restarts a suspended task.

Unlink prevents the sending of typed-in characters to the task. Instead, they are processed as if the task window were a normal Edit text window.

Link reverses the effect of **Unlink**.

TaskInput reads task input from the currently selected block.

Ignore Ctrl, when selected, prevents any control characters generated by the program from being sent to the screen.

Edit leads to the normal Edit menu. Although this makes available most of Edit's features, you cannot use facilities such as the cursor keys or keys such as Page Up and Home while you are using a task window. If you want to use Edit's features, Unlink the window first.

Some guidelines and suggestions for using task windows

To use a task window, you will need to be familiar with command line mode. There are some commands which you will find are more useful in a task window than they are directly from the command line. However you will also find that nearly all of the commands that affect the configuration of the desktop can also be performed using the desktop application **Configure** and the Task manager **Task display**.

Here are a few commands to whet your appetite:

`*wimpslot` *min* `[`*max*`]` can be used to adjust the amount of memory available to the task, which will otherwise start up using the **Next** space allocation. You can examine this using the Task manager window. *min* and *max* indicate how much memory the task is allowed to have. If you want to remove all the memory allocated to a task without closing its window or destroying the task, use the command `*Wimpslot 0 0`.

`*Filer_opendir` *path* opens a new directory display for the directory with the given path. The path must start with a filing system name, but need not be a full pathname. For example, `adfs::@` will open a display for the current directory.

The command `*Spool` should not be used from a task window. Because its effect is to write everything that appears on the screen to the spool file, using `*Spool` from the desktop will produce unusable files full of screen control characters. There is, in any case, no point in using `*Spool`, since the output from the task appears in the window, and can be saved using Edit as normal.

When you run a command in a task window, the computer divides its time between the task window and other activities running in the desktop. You should note that some time-consuming commands, for example, a `*Copy` of a large file, may prevent access to the filing system that they use until the command is complete.

Note that command line notions such as 'current directory' become relevant when you are using Task Windows.

The command line help system

The command line command ***Help** gives brief information about each command in the operating system. `*Help` *keyword* displays a brief explanation of the keyword and, if the keyword is a command name, the syntax of the command.

If you are not sure about the name of a command:

`*Help Commands` will list all the available utility commands;

`*Help FileCommands` will list all the commands relating to filing systems;

`*Help Modules` will list the names of all currently loaded modules, with their version numbers and creation dates;

`*Help Syntax` explains the format used for help messages.

The usual use of *Help is to confirm that a command is appropriate for the job required, and to check on its syntax (the number, type and ordering of parameters that the command requires).

When you issue the *Help command at the normal command line prompt, 'paged mode' is switched on: the computer displays a screenful of text, then waits until you press Shift before moving on.

The specification of the keyword can include abbreviations to allow groups of commands to be specified. For example,

```
*help con.
```

produces information on *Configure and *Continue. You can also use this to establish the current abbreviation for a command. Since RISC OS uses the first command it finds that matches an abbreviation, typing *Con. is equivalent to *Configure. For the *Continue command, the minimum abbreviation must distinguish it from *Configure, and is therefore *Cont. These abbreviations may change as new commands are added.

11 Notes for command line users

Command line users will find many hint and tips in the following sections. The chapter is split up into the following sections:

- **Command line syntax**, detailing the syntax you need to use within the command line.
- **System devices**, giving you a summary of useful system devices you can use.
- **System variables**, explaining how variables are used by the operating system.
- **Command scripts**, showing you how to write Command and Obey files to control the computer.

Command line syntax

The interface to the command line is built into the RISC OS operating system and processes valid commands sent as text strings. The text string is normally terminated by Return.

The syntax of each command in the following chapters is described in a standard way, with examples of its use where these are helpful. The symbols used in syntax descriptions are:

italics	indicate that an actual value must be substituted. For example, *filename* means that an actual filename must be supplied.
[...]	indicate that the item enclosed in the square brackets is optional.
|	indicates alternatives. For example, 0 | 1 means that the value 0 or 1 must be supplied.

What are parameters?

RISC OS commands are sometimes followed by one or more *parameters* which tell the computer how you want the command to be modified. Ordinary English is not so very different: in the sentence 'Give a dog a bone' the word *give* is like the command, and a *dog* and a *bone* are the parameters. And because it doesn't make much sense just to say 'Give' – you have to say what to give, and who to give it to – these 'parameters' are not optional.

In the following descriptions, the parameters are in italics. So the English example would be described like this:

give *someone something*

but you would type, for example,

```
give a dog a bone
```

or

```
give everyone a pay rise
```

However, whereas in English you can substitute several words separated by spaces for a single parameter, in RISC OS you can leave spaces only *between* parameters, since otherwise the operating system cannot tell where you want one parameter to end and the next to begin.

Command line parameters may be optional: in this case they are in square brackets. Often, when a parameter is specified as optional, the operating system will supply a default value; the value of this is specified for each command.

Numeric parameters

Some commands have one or more numeric parameters. These are interpreted as decimal by default (unless the description of the command specifies otherwise), but it is possible to express them to any base by prefacing the parameter itself with the base followed by an underscore, as in the following examples:

`*Eval 2_1010101`	Returns the decimal value of the argument, viz 85.
`*Eval 16_FFF`	Similarly, returns the value 4095.

Decimal and hexadecimal are likely to be the most useful bases.

Wildcards

It is useful in many command line operations to specify objects using 'wildcards'. There are two wildcards:

*	stands for zero or more characters
#	stands for a single character

Examples

`he*`	would stand for *he*, *help*, *hello*, or *hencoop*
`he*p`	would stand for *help* or *hencoop*
`he##`	would stand for *help*, *hens* or *head*, but not *hen* or *health*

Checks on the command

Before a command is executed, the command line interface carries out a certain amount of pre-processing on the line:

- stars and spaces are skipped. The command line prompt includes a star, so there is no need to type one, but it doesn't matter if you do.
- Comment lines are ignored. Comments may be introduced by typing '|' as the first non-space character on a line.
- Command length is checked. Command lines must be less than or equal to 256 characters, including the terminating character. Lines which are too long produce an error message.
- Redirection (output to a file, or input from a file) is checked.
- Single-character prefixes are checked, such as '/', equivalent to RUN, or '%' which instructs the command line interface to skip alias checking.
- Alias commands are checked. (The section entitled *System variables* on page 137 gives more information on the use of aliases.)
- The command is passed for execution. Commands offered to the command line interface are looked up in the OS table, passed to any other modules, the filing system manager, and finally *Run as a file of the name given, in an attempt to execute the command.

Full details of this checking are given in the RISC OS *Programmer's Reference Manual*.

File redirection

A powerful feature of RISC OS is the ability to redirect input or output streams (or both) for the duration of the command. By default, output is directed to the screen, but it may be convenient to store the output stream as a file so that it can be examined in more detail or processed further.

The format of a redirection is:

```
command { redirection spec }
```

where the `redirection spec` is at least one of:

`> filename`	Output goes to *`filename`*.
`< filename`	Input read from *`filename`*.
`>> filename`	Output is appended to *`filename`*.

Note the following:

- Spaces in the redirection specification are significant.
- The braces are a literal part of the redirection format.

- There must be a single space between each pair of elements for it to be recognised as a redirection.

Examples

```
*Cat  { > mycat }
```

This sends a list of the contents in the current directory to a file called `mycat`.

```
*Help Cat { > AllHelp }
```

This sends all the help information on the * command Cat, elicited by the command `*Help Cat` to a file called `AllHelp`.

System devices

The operating system contains a number of useful system devices, which behave like files in some ways. You can use them anywhere you would normally use a file name as a source of input, or as a destination for output. These include the following:

System devices suitable for input

`kbd:`	the keyboard, reading a line at a time (this allows editing using Delete, Ctrl-U, and other keys)
`rawkbd:`	the keyboard, reading a character at a time
`serial:`	the serial port
`null:`	the 'null device', which effectively gives no input

System devices suitable for output

`vdu:`	the screen, using GSRead format (see page 147)
`rawvdu:`	the screen, via the VDU drivers
`serial:`	the serial port
`printer:`	the currently configured printer
`netprint:`	the currently configured network printer
`null:`	the 'null device', which swallows all output

These system devices can be useful with commands such as *Copy, and the redirection operators (> and <):

`*Copy myfile printer:`	Send `myfile` to the printer
`*Cat { > printer: }`	List the files in the current directory to the printer
`*Cat netprint:`	Displays the currently selected network printer and a list of available network printers.

The system device `null:` is useful to suppress unwanted output from a command script or program:

`*myprogram { > null: }`	Runs `myprogram` with no output

The most useful system devices for the general user are likely to be `printer:` and `netprint:`

System variables

Introducing variables

The section entitled *Saving and loading configurations* on page 86 describes how Configure stores the settings used at start-up time in the computer's RAM. As well as these, there are other settings that RISC OS needs, such as how you like the time and date to be printed, how you want the *Copy command to work, and what prompt you like. These are stored in system variables.

However, unlike configuration features, your settings for system variables are not preserved when you switch the computer off or reset it. When you do this, the computer always goes back to the default values for the standard set of system variables. You can see these default values by typing *Show just after switching on your computer.

In addition to RISC OS system variables, applications commonly use variables of their own, controlling similar kinds of things. For example, Edit uses variables to store your choices of display font, background colour and so on. Where there are such variables, they are listed in the relevant chapter in the *Applications Guide*. Some suggestions for using them are also included later in this chapter.

Setting variables in a boot file

If the default values are not the ones you want, you can change them using the *Set command. The computer does not remember system variables between sessions, so if you want different default values you must change the variable each time you use your computer. Rather than typing them each time by hand, you can include the *Set commands in a boot file (a file that is run each time you use the computer).

However, although you could create such a boot file 'by hand', typing it in Edit, a much easier way is to use the Task manager's desktop boot facility, described in the chapter entitled *Desktop boot files* on page 109. You will then not need to understand anything about system variables as such, since you can simply set up the desktop the way you want it and make a desktop boot file. Even if you wish to edit the boot file created by the Task manager, that is the easiest way to start.

Referring to variables

Each variable is accessed by its name, which can contain any character which is neither a space nor a control character. As with filenames, the case of characters is remembered, but is ignored when the names are looked up.

Some standard variables

There are many different system variables provided and used by RISC OS, as well as some which may be added by applications. You can see them all by typing *Show (use Shift to display each successive screenful).

The variables in the list below are those that you are most likely to need. The list also explains the function of each variable. Some of the descriptions apply to a group of variables whose function is similar.

Variable	Use
File$Type_*nnn*	name of file type *nnn*, where *nnn* is a 3-digit hexadecimal number
Mail$...	group of variables used by the MailMan application
Alias$@LoadType_*nnn*	action for file type *nnn* when a *Load command is given
Alias$@RunType_*nnn*	action for file type *nnn* when a *Run command is given
Alias$@PrintType_*nnn*	action for file type *nnn* when an attempt is made to print it
File$Path	directory(s) to search when a *Load command is given
Font$Path	directory(s) to search when a font is requested
Run$Path	directory(s) to search when a *Run command is given
Printer$Temp	temporary printer file used by the Printer manager application
Alias$...	used for renaming a command, or defining a new one using existing commands
CLI$Prompt	prompt used in command line mode

Variable	Use
...$Options	default action for a command or features used by an application (see below)
Font$Prefix	root of directory tree containing fonts
Key$*n*	string assigned to function key *n*, as used by *Key
...$Dir	home directory for an application
Sys$DateFormat	date display format (see below)
Sys$Time	time in form 14:05:36
Sys$Date	date in form Tue,25 Oct
Sys$Year	year in form 1991
Sys$RCLimit	maximum permitted return code
Sys$ReturnCode	most recent return code

The last six variables are special because they cannot be deleted, although you can assign new values to them just as you can to any other variable.

Variables such as Font$Path can take a list of directories as their value. Each directory path must end with a full stop and must be separated from the next by a comma, as in the following example:

```
*Set Font$Path ResourceFS:$.Fonts.,adfs::HardDisc.$.!Fonts
```

Command and application options and other variables

Some commands, such as *Copy and *Wipe, can operate in a variety of ways. For example, you can effectively turn *Copy into a Move command by setting the D(elete) option, which deletes the source file after copying it to another directory or filing system. You would do this by typing

```
*Set Copy$Options D
```

at the command line prompt. These options are described in the entries for each command in the chapter entitled *Star command summaries* on page 157.

Several applications, such as Edit, Draw, Alarm and Paint, also use system variables to record, for example, whether you want the Paint colours window to appear automatically when you open a sprite window, or whether you want the toolbox to be displayed by default in Draw. Such variables use the format *name*`$Options`, where *name* is the name of the application in question. These variables will only be listed in the computer's response to the *Show command if you have changed them from their default values.

In addition to 'options', applications may use other variables for a variety of purposes. For example, Acorn Desktop Publisher needs to know where its 'Work' directory is. It will find this out either when the Work disc is inserted into the floppy drive, or (in the case of a hard disc installation) when the Work directory has been

displayed on the screen, and assigns the directory's pathname to the variable `dtp$WorkDir`. However, to avoid having to carry out one of these actions each time you want to use the application, you can incorporate a *Set command identifying the disc or directory in your boot file, along these lines:

```
*Set dtp$WorkDir adfs::HardDisc.$.Applics.dtp.WorkDir
```

Setting the date and time format

The date and time format can be set by altering the system variable Sys$DateFormat. The text of this variable is printed as set, except when a % appears. In this case, the next two characters are treated as a special field name which is replaced by a component of the current time. The field names, which may use upper or lower case, are:

Name	Value	Example
CS	centiseconds	99
SE	seconds	59
MI	minutes	05
12	hours in 12 hour format	07
24	hours in 24 hour format	23
AM or PM	'AM' or 'PM'	pm
WE	weekday, in full	Thursday
W3	weekday, in three characters	Thu
WN	weekday, as a number	5
DY	day of the month	01
ST	'st', 'nd', 'rd' or 'th'	st
MO	month name, in full	September
M3	month name, in three characters	Sep
MN	month as a number	09
CE	century	19
YR	year within century	87
WK	week of the year, Mon to Sun	52
DN	day of the year	364
0	insert an ASCII 0 zero byte	
%	insert a %	

To cause leading zeros to be omitted, prefix the field with the letter Z. For example, `%zmn` means the month number without leading zeros. %0 may be used to split the output into several zero-terminated strings.

Changing Sys$DateFormat affects the output of some commands, such as *Info and *Ex, but does not affect the *Time command.

Example 1: changing the time and date format

Begin by typing

```
*Info ThisFile
```

where ThisFile is a file in your current directory. The information displayed includes the time when the file was last altered.

```
ThisFile   WR/r  Obey  18:53:39 26-Oct-1988  848  bytes
```

Change the date format, and get the information again, showing the time in the new format:

```
*Set Sys$DateFormat %we %zdy%st %mo %ce%yr (%z12:%mi %am)
*Info ThisFile
ThisFile WR/r Obey Wednesday 26th October 1988 (6:53
pm)   848  bytes
```

Example 2: creating your own command line prompt

You can also use a system variable to change the operating system prompt – normally * – by setting the variable CLI$Prompt to (for example) the character #:

```
*Set CLI$Prompt #
```

You can also set one variable to the value of another:

```
*Set CLI$Prompt <Sys$Time>
```

This sets the prompt to the system time, but only does so once, when the command is given. However, it would clearly be more useful if the prompt always showed the current time. To do this, change CLI$Prompt from a variable into a macro. A macro is similar to a variable, but is evaluated every time it is used, instead of just once when it is set. Therefore, type the following:

```
*SetMacro CLI$Prompt <Sys$Time> *
```

Each time Return is pressed at the command line prompt a new prompt is given (unless you have not typed anything since the last Return; you will then be returned to the desktop); the current time is worked out and displayed, followed by a space character and an asterisk:

```
12:59:06 *
12:59:07 *
12:59:08 *
```

Other uses for system variables

The names of commands may be changed using the *Set command with variables whose name starts Alias$... This allows you to add new commands, to change the meaning of existing commands, to combine commands together, and to add your own parameters to a command.

Programmers can use system variables to pass values between programs. One program can create and write to a variable which another program can then read. Such variables should have names starting *name*$, where *name* is your program; this will avoid problems caused by programmers using the same system variable names.

Command scripts

Command scripts are files of commands that you would normally type in at the command line prompt. There are two main uses for such files:

- To set up the computer to the state you want, either when you switch on or when you start an application. This type of command script is commonly known as a boot file, because it is used to 'boot up' the computer. You can create such a file without needing to know anything about the command line, using the **Desktop boot** facility in the Task manager, described in the section entitled *Inside the desktop boot file* on page 110.
- To save typing in a set of commands you find yourself using frequently. For example, if you often want to display information about a file and then print it, you can combine the commands `*FileInfo` and `*Type` into a command script

You may find using an `Alias$...` variable to be better for the second case. The main advantage of using variables rather than command files is that they are held in memory and so are quicker in execution; however, they are only really suitable for short commands. If you use variables you will probably still want to use a command file to set them up when you switch on.

Command and Obey file types

There are two types of file you can use for command scripts: Command files, and Obey files. The differences between these two file types are:

- An Obey file is always passed to the command line interpreter, whereas a Command file is passed to the current input. The differences between Command and Obey files is explained in an example on page 145.
- An Obey file is read directly, whereas a Command file is treated as if it were typed at the keyboard (and hence usually appears on the screen).

- An Obey file sets the system variable Obey$Dir to the directory it is in.
- An Obey file can have parameters passed to it.

Creating a command script

A command script can be created using any text or word processor. If you created the file using Edit, you should set the file's type by pressing Menu over the file's icon, selecting **Set type**, and typing Command or Obey.

When you save the file you should consider in which directory you will save it. By default, files are looked for first in the current directory, then in the library. Therefore, if you want to avoid having to type the full pathname of the file every time you run it you should save it in one of the following:

- the directory from which the command script will be run (typically your root directory, or an application directory)
- the library. The library is typically `$.Library`, but may be `$.ArthurLib` on a network; see `*Configure Lib` in the section entitled *Configuration commands* on page 151.

Running the script

Provided that you have set the file type to Command or Obey, the file can then be run in the same ways as any other file, by

- typing its name at the * prompt
- typing its name preceded by a * at any other prompt (some applications may not support this)
- double-clicking on its icon in a directory display.

The same restrictions apply as with any other file. If the file is not in either your current directory or the library, it will not be found if you just give the filename; you must give its full pathname. This assumes you have not changed the value of the system variable Run$Path.

Making a script run automatically

You can make scripts run automatically

- from the network when you first log on
- from a disc when you first switch the computer on
- from an application directory when the application is run.

To do this, your file must be called `!Boot`, or `!ArmBoot` on the network (this is to distinguish a boot file for a machine running RISC OS from an existing `!Boot` file already on the network for the use of BBC computers).

In the first two cases you will need to use the `*Opt` command as well; see the section entitled *Filing system commands* on page 149.

For an example of the last case, you can look in any of the application directories in the Applications Suite. To do this on the desktop, hold down Shift as you double-click on the application directory, otherwise the application will run.

Using parameters

An Obey file – but not a Command file – can have parameters passed to it, which can then be used by the command script. The first parameter is referred to as %0, the second as %1, and so on. You can refer to all the parameters after a particular one by putting a * after the %, so %*1 would refer to all the parameters from the second one onwards.

These parameters are substituted before the line is passed to the command line interpreter. Thus if an Obey file called `Display` contained:

```
FileInfo %0
Type %0
```

then the command `*Display MyFile` would do this:

```
FileInfo MyFile
Type MyFile
```

Sometimes you do not want parameter substitution. For example, suppose you wish to include a *Set Alias$.. command in your file, such as:

```
Set Alias$Mode echo |<22>|<%0> Desired-command
```

The effect of this is to create a new command 'Mode'. If you include the *Set Alias command in an Obey file, when you run the file the %0 will be replaced by the first parameter passed to the file. To prevent the substitution you need to change the % to %%:

```
Set Alias$Mode echo |<22>|<%%0> Command-needed-in-file
```

Now when the file is run, the '%%0' is changed to '%0'. No other substitution occurs at this stage, and the desired command is issued.

Examples

These example files illustrate some of the differences between Command and Obey files:

Example 1

```
*BASIC
AUTO
FOR I = 1 TO 10
  PRINT "Hello"
NEXT I
END
```

If this is a command file, it will enter the BASIC interpreter, and input the file shown. The command script will end with the BASIC interpreter waiting for another line of input. You can then press Esc to get a prompt, type `RUN` to run the program, and then type `QUIT` to leave BASIC. This script shows how a command file is passed to the input, and can change what is accepting its input (in this case to the BASIC interpreter).

On the other hand, if this is an Obey file it will be passed to the command line interpreter, and an attempt will be made to run these commands:

```
*BASIC
*AUTO
*FOR I = 1 TO 10
*  PRINT "Hello"
*NEXT I
*END
```

Only the first command is valid, and so as an Obey file all this does is to leave you in the BASIC interpreter. Type `QUIT` to leave BASIC; you will then get an error message saying `File 'AUTO' not found`, generated by the second line in the file.

Example 2

The next example illustrates how control characters are handled:

```
echo <7>
echo |<7>
```

The control characters are represented in GSTrans format (see the section entitled *Using* GS *formats in scripts* on page 147). These are not interpreted until the echo command is run, and are only interpreted then because `echo` expects GSTrans format.

The first line sends an ASCII 7 to the VDU drivers, sounding a beep. In the second line, the | preceding the < changes it from the start of a GSTrans sequence to just representing the character <, so the overall effect is:

```
echo <7>        Send ASCII 7 to VDU drivers – beeps
echo |<7>       Send <7> to the screen
```

Example 3

The last examples are a Command file:

```
*Set Alias$more %echo |<14>|m %type -tabexpand %*0|m
%echo |<15>
```

and an Obey file that has the same effect:

```
Set Alias$more %echo |<14>|m %type -tabexpand %%*0|m
%echo |<15>
```

The only differences between the two examples are that the Command file has a preceding * added, to ensure that the command is passed to the command line interpreter, and that the Obey file has the `%*0` changed to `%%*0` to delay the substitution of parameters.

The file creates a new command `more` – taking its name from the UNIX 'more' command – by setting the variable `Alias$more`:

- The `%` characters that precede `echo` and `type` ensure that the actual commands are used, rather than an aliased version of them.
- The sequence `|m` represents a carriage return in GSTrans format (see the section entitled *Using GS formats in scripts* overleaf). It is used to separate the commands, just as Return would if you were typing the commands.
- The two `echo` commands turn scroll mode on, then off, by sending the control characters ASCII 14 and 15 respectively to the VDU drivers.
- The | before each < prevents the control characters from being interpreted until the aliased command `more` is run.

The command turns scroll mode on, types a file to the screen expanding tabs as it does so, and then turns scroll mode off.

Using GS formats in scripts

The GSTrans and GSRead formats are used by a number of commands that need to be able to handle control characters, and characters whose top bit is set. They enable you to use these characters, which would otherwise cause unpredictable output from your monitor or printer, and which would be difficult to enter directly from the keyboard. The two formats are identical.

Conventions

The GSRead or GSTrans format is used by some commands to read characters that you type in. The characters are interpreted using the following conventions:

- A character preceded by a | is converted into the relevant control code: |C would become ASCII 3 (which is Ctrl C).
- An integer within angle brackets is converted into the equivalent ASCII code: <7> would become ASCII 7.
- A variable name within angle brackets is replaced by the value held in the variable, or is ignored if the variable does not exist.
- All other characters are unchanged.

A full list of ASCII codes and how to obtain them is given below. Of course, any ASCII code may be obtained by enclosing it in angle brackets as described above, and this may be easier to remember than the symbol encoding.

ASCII code	**Symbols used**	
0	|@	
1 – 26	|*letter* eg	|A (or |a) = ASCII 1 |M (or |m) = ASCII 13
27	|[or |{	
28	|\	
29	|] or |}	
30	|^ or |~	
31	|_ or |'	
32 – 126	keyboard character, except for:	
"	|"	
|	||	
<	|<	
127	|?	
128 – 255	|!*coded-symbol* eg	ASCII 128 = |!|@ ASCII 129 = |!|A etc

You must use |< to prevent the < from being interpreted as the start of a number or variable name enclosed in angled brackets.

To include leading spaces in a definition, the string must be in double quotation marks, ", which are not included in the definition. To include a literal " character in the string, use |" or "".

12 Types of star command

This chapter gives a short summary of each of the types of *Commands and then gives a list of *Commands in each grouping. Once you have found the *Command of interest you can look up a summary of its function and its syntax in the next chapter.

For full information about the star commands in this and the next chapter, refer to the RISC OS *Programmer's Reference Manual*.

Filing system commands

Before you use these commands you should have read the chapters on filing systems. Those chapters introduce the filing systems and describe how they work, and also explain the terminology used in this chapter.

The commands in this section are relevant to the operation of filing systems. They have been divided into those commands which apply to all filing systems and those which apply to specific filing systems.

In many commands, reference is made to the current directory; many parameters, if omitted, will default to this directory. You can determine at any time which the current directory is by typing *Cat and then pressing Return; this displays a catalogue of the current directory. It is important to realise that opening or closing a directory display in the desktop does not change the current directory. Use the command *Dir to change directory within the command line.

*Access
*Append
*Build
*Cat
*CDir
*Close
*Copy
*Count
*Create
*Delete
*Dir
*Dump
*EnumDir
*Ex
*Exec
*FileInfo
*Info
*LCat
*LEx
*Lib
*List
*Load
*Opt 1
*Opt 4
*PipeCopy
*Print
*Rename
*Remove
*Run
*Save
*SetType
*Shut
*ShutDown
*Spool
*SpoolOn
*Stamp
*Type
*Up
*Wipe

Disc-specific commands

The Advanced Disc Filing System (ADFS) is the default filing system, and is supplied with every system. However most of these commands also apply to other disc filing systems such as the SCSI Filing System (SCSI) and the Compact Disc Filing System (CDFS). ADFS controls the local disc storage media (floppy disc, and hard disc if fitted). This version of ADFS is compatible with previous versions of Acorn ADFS.

*ADFS
*Back
*Backup
*Bye
*CheckMap
*Compact
*CopyBoot
*Defect
*Dismount
*DOSMap
*Drive
*Format
*Free
*Map
*Mount
*NameDisc
*NoDir
*NoLib
*NoURD
*URD
*Verify

Econet-specific commands

The Network Filing System is for use with an Econet local area network. For general information on NetFS, see the chapter entitled *Discs, networks and filing systems* on page 31.

*Net
*Bye
*Free
*FS
*I am
*ListFS
*ListPS
*Logon
*Mount
*Pass
*PS
*SDisc
*SetPS

Other filing systems

The Advanced Disc Filing System (ADFS) and, for network users, the Network Filing System (NetFS) are the most commonly used, but more specialised filing systems – such as the RAM filing system (RAMFS) and the desktop filing system (ResourceFS) – have commands to select them, which are described below. Some of these filing systems may not be present on your computer.

*Ram
*ResourceFS
*SCSI
*CDFS

Configuration commands

These commands are used to configure, or set up, the computer. The main command used is the *Configure command, which has many possible parameters, one for each of the CMOS RAM options you can set with it. CMOS RAM contains values of settings used at startup time; these values are not lost when mains power is switched off, since CMOS RAM is supported by batteries: the memory is therefore known as 'non-volatile'.

The Configure application, !Configure, can control most of these features, such as mouse speed, keyboard auto-repeat, sound volume, printer type, the keyboard Caps Lock, and the type of window dragging. The !Configure application is described on page 85.

Changes set with *Configure are recorded immediately, but take effect only after power on or a hard reset.

The Configure application also provides a facility for saving configurations as files. Such files will incorporate settings only for those features that can be set with the !Configure application, not for those that have to be set in the command line.

The *Status command displays a list of the current options and their currently assigned values, the entire collection of settings being known as the configuration status of the machine.

User preferences

This group of configuration commands allows you to customise the operation of your computer to suit your personal working style.

*Configure Boot
*Configure Caps
*Configure Delay
*Configure Dir
*Configure DumpFormat
*Configure FileSystem
*Configure Language
*Configure Lib
*Configure Loud
*Configure Mode
*Configure NoBoot
*Configure NoCaps
*Configure NoDir
*Configure NoScroll
*Configure Quiet
*Configure Repeat
*Configure Scroll
*Configure ShCaps
*Configure SoundDefault
*Configure Truncate

Desktop preferences

This group of configuration commands allows you to set up your desktop configuration to suit your own way of working. These commands are usually set using the !Configure application.

*Configure MouseStep
*Configure WimpAutoMenuDelay
*Configure WimpDoubleClickDelay
*Configure WimpDoubleClickMove
*Configure WimpDragDelay
*Configure WimpDragMove
*Configure WimpFlags
*Configure WimpMenuDragDelay
*Configure WimpMode

Hardware configuration

This group of configuration commands allows you to set up your computer to suit its hardware specification and the range of peripherals such as printers that are connected to it.

*Configure Baud
*Configure BST
*Configure Cache
*Configure Country
*Configure Data
*Configure Drive
*Configure DST
*Configure Floppies
*Configure FS
*Configure GMT
*Configure HardDiscs
*Configure IDEDiscs
*Configure Ignore
*Configure MonitorType
*Configure NoDST
*Configure Print
*Configure PS
*Configure Step
*Configure Sync
*Configure Territory
*Configure TV

Memory allocation

This group of configuration commands allows you to optimise the use of memory. The default memory allocations take into account the model number of your Acorn computer (and hence the overall size of memory), so these values should not be changed for general use.

For many of these commands you can specify the amount of memory to reserve either in kilobytes or in pages of memory. It is preferable to use kilobytes, as the page size could change on future versions of the hardware. For reference, the current page sizes are:

1Mbyte machines:	8Kbytes
2Mbyte machines:	16Kbytes
4Mbyte machines:	32Kbytes
>4Mbyte machines	32Kbytes

You can see how memory is allocated and make temporary changes by using the Task manager from the desktop.

*Configure ADFSbuffers
*Configure ADFSDirCache
*Configure FontSize
*Configure FontMax
*Configure FontMax1
*Configure FontMax2
*Configure FontMax3
*Configure FontMax4
*Configure FontMax5
*Configure RAMFsSize
*Configure RMASize
*Configure ScreenSize
*Configure SpriteSize
*Configure SystemSize

System variables

The chapter entitled *Notes for command line users* on page 133 describes how RISC OS stores settings used at start-up time in the computer's RAM.

These are the commands used for system variables:

*Show
*Set
*SetEval
*SetMacro
*Unset

Module-related commands

A relocatable module is a piece of software which, when loaded into the machine, behaves like a normal application program or as an extension to the operating system. Modules can contain programming languages or filing systems; they can be used to add new * commands.

Relocatable modules run in an area of memory known as the Relocatable Module Area (RMA) which is maintained by the system. They are 'relocatable' because they can be loaded at any particular location in memory.

RISC OS provides facilities for integrating modules in such a way that, to the user, they appear to be a full part of the system. For instance, the operating system responds to the *Help command, extracting automatically any relevant help text.

Several * commands are provided by the operating system for handling modules, including one for loading a module file from the filing system, and these are described in detail in the next chapter.

*Modules
*RMClear
*RMEnsure
*RMFaster
*RMInsert
*RMKill
*RMLoad
*RMReInit
*RMRun
*RMTidy
*ROMModules
*Unplug

Sound system commands

RISC OS contains a sound synthesizer which allows up to eight 'instruments' to be played at once, with mono or stereo sound production for each instrument. The sound system can be controlled with great subtlety, the details of which are outside the scope of this guide. Individual sound commands are listed below; for further information, refer to the chapter on Sound in the RISC OS *Programmer's Reference Manual*.

The Maestro program is included on the Applications disc; it enables you to compose and replay music.

*Audio
*ChannelVoice
*QSound
*Sound
*Speaker
*Stereo
*Tempo
*Tuning
*Voices
*Volume

FX commands

*FX commands access the operating system OS_Byte routines and require from one to three parameters. Like many of the operating system commands, many *FX actions can be carried out from the desktop. For example, the printer ignore character can be set using the Configure application. In addition, there is little error handling built in to *FX commands, and invalid values are not rejected and may have unpredictable results. Most *FX commands have now been replaced by better RISC OS operations; *FX commands have been retained for reasons of backwards compatibility.

For further information, refer to the RISC OS *Programmer's Reference Manual*.

Debugger commands

These commands are for use when debugging applications:

*BreakClr
*BreakList
*BreakSet
*Continue
*Debug
*InitStore
*Memory
*MemoryA
*MemoryI
*ShowRegs

Desktop commands

These commands are related to the desktop, filer and wimp behaviour:

*AddTinyDir
*Backdrop
*Desktop
*Desktop_...
*Desktop_SetPalette
*Filer_Action
*Filer_Boot
*Filer_CloseDir
*Filer_OpenDir
*Filer_Run
*Filters
*IconSprites
*Pin
*Pinboard
*Pointer
*RemoveTinyDir
*ShellCLI
*ShellCLI_Task
*ShellCLI_TaskQuit
*ShowFree
*TaskWindow
*WimpMode
*WimpPalette
*WimpSlot
*WimpTask
*WimpWriteDir

Sprite commands

These commands are used to control sprites:

*SChoose
*ScreenLoad
*ScreenSave
*SCopy
*SDelete
*SDisc
*SFlipX
*SFlipY
*SGet
*SInfo
*SList
*SLoad
*SMerge
*SNew
*SRename
*SSave

Font commands

These commands are used to control fonts and font usage:

*FontCat
*FontInstall
*FontLibrary
*FontList
*FontRemove
*LoadFontCache
*SaveFontCache

Miscellaneous star commands

These commands control the behaviour of the keyboard, VDU and printer ports, including customising the computer for international use. In addition, there are commands of interest to programmers and those who wish to prepare Obey files or startup scripts (for more information, see the chapter entitled *Notes for command line users* on page 133).

*Alphabet
*Alphabets
*BASIC
*BASIC64
*BlankTime
*Cache
*ChangeDynamicArea
*ColourTrans
*Country
*Countries
*Echo
*Error
*Eval
*Go
*Gos
*If
*Ignore
*Key
*Keyboard
*Obey
*Podules
*PoduleLoad
*PoduleSave
*Quit
*Shadow
*Time
*TV

13 Star command summaries

This is an alphabetical list of every *Command, *FX command and VDU command available under RISC OS 3. It does not contain commands that may be added through the addition of additional filing systems or expansion cards.

Each command is followed by a short explanation of its function and its command syntax. This is not intended as a complete explanation of the command, but as a quick reference for experienced users who may prefer to use the command line. All of these commands are explained in greater detail in the RISC OS *Programmer's Reference Manual*.

Command syntax

The syntax of each command in the following sections is described in a standard way, with examples of its use where these are helpful. The symbols used in syntax descriptions are:

italics	indicate that an actual value must be substituted. For example, *filename* means that an actual filename must be supplied.
[...]	indicate that the item enclosed in the square brackets is optional.
|	indicates alternatives. For example, 0 | 1 means that the value 0 or 1 must be supplied.

The star commands

*Access

*Access changes the attributes of all objects matching the wildcard specification. These attributes control whether you can run, read from, write to and delete a file.

Attributes are:

L(ock)	Lock object against deletion
R(ead)	Read permission
W(rite)	Write permission
/R, /W, /WR	Public read and write permission (on NetFS)

*Access *object_spec* [*attributes*]

*AddTinyDir

*AddTinyDir adds a file, application or directory to the icon bar. If no pathname is given, it adds a blank directory icon to the icon bar.

```
*AddTinyDir [object]
```

*ADFS

*ADFS selects the Advanced Disc Filing System as the current filing system.

```
*ADFS
```

*Alphabet

*Alphabet selects an alphabet, setting it according to the country name or alphabet name. With no parameter, this command displays the currently selected alphabet.

```
*Alphabet [country_name|alphabet_name]
```

*Alphabets

*Alphabets lists all the alphabets currently supported.

```
*Alphabets
```

*Append

*Append opens an existing file so you can add more data to the end of the file. Pressing Escape finishes the input.

```
*Append filename
```

*Audio

*Audio turns the Sound system on or off.

```
*Audio On|Off
```

*Back

*Back swaps the current and previously selected directories.

```
*Back
```

*Backdrop

*Backdrop puts the first sprite in the given sprite file on the desktop background.

```
*Backdrop [-Centre|-Scale|-Tile] filename
```

*Backup

*Backup copies the used part of one floppy disc to another; free space is not copied.

```
*Backup source_drive dest_drive [Q]
```

*BASIC

*BASIC starts the ARM BBC BASIC V interpreter. For full details of BBC BASIC, see the BBC BASIC *Reference Manual*, available from your Acorn supplier.

```
*BASIC [options]
```

*BASIC64

*BASIC64 starts the ARM BBC BASIC VI interpreter, supplied on disc with your RISC OS computer – provided its module has already been loaded, or is in the library. For full details of BBC BASIC, see the BBC BASIC *Reference Manual*, available from your Acorn supplier.

```
*BASIC64 [options]
```

*BlankTime

*BlankTime sets the time in seconds before the screen blanks. If, during this time, there is no activity (ie no keyboard or mouse input is received, and – with the `W` option – there is no writing to the screen) the screen then blanks.

The blank time is only retained until the next reset.

```
*BlankTime [W|O] [time]
```

*BreakClr

*BreakClr removes the breakpoint at the specified address/register value. If you give no parameter then you can remove all breakpoints.

```
*BreakClr [addr|reg]
```

*BreakList

*BreakList lists all the breakpoints that are currently set.

```
*BreakList
```

*BreakSet

*BreakSet sets a breakpoint at the specified address or register value.

```
*BreakSet addr|reg
```

*Build

*Build opens a new file and directs subsequent input to it. Pressing Escape finishes the input.

```
*Build filename
```

*Bye

*Bye ends a filing system session by closing all files and unsetting all directories and libraries.

Other actions are filing system dependent, and where relevant may include dismounting discs, parking the heads of hard discs, and logging off the current fileserver.

```
*Bye
*Bye [[:]file_server]                    (NetFS syntax)
```

*Cache

*Cache turns the cache on or off. With no parameter, it gives the cache's current state.

```
*Cache [On|Off]
```

*Cat

*Cat lists all the objects in a directory (by default the current directory).

```
*Cat [directory]
```

*CDir

*CDir creates a directory with the specified pathname. On the NetFS, you can also give the size of the directory.

```
*CDir directory [size_in_entries]
```

*CDFS

*CDFS selects the Compact Disc Filing System as the current filing system. This is only available if you have a compact disc fitted.

```
*CDFS
```

*ChangeDynamicArea

*ChangeDynamicArea changes the size of the font cache, system sprite area and/or RAM disc.

```
*ChangeDynamicArea [-FontSize n[K]] [-SpriteSize n[K]] [-RamFsSize n[K]]
```

*ChannelVoice

*ChannelVoice assigns a voice to a channel. By default, only the first of the eight voices will be available. To make others available, use the BASIC VOICES *n* command.

```
*ChannelVoice channel voice_number|voice_name
```

*CheckMap

*CheckMap checks that the map of an E- or F-format disc has the correct checksums and is consistent with the directory tree. If only one copy of the map is good, it allows you to rewrite the bad one with the information in the good one.

```
*CheckMap [disc_spec]
```

*Close

*Close closes all open files on the current filing system.

```
*Close
```

*ColourTrans...

*ColourTrans... commands are for internal use only, and you should not use them.

*Compact

*Compact collects together free space on a disc by moving files.

```
*Compact [disc_spec]
```

*Configure

*Configure sets the value of a configuration option in the CMOS RAM. If no parameters are specified, the available configuration options are listed.

```
*Configure [option [value]]
```

*Configure ADFSbuffers

*Configure ADFSbuffers sets the configured number of 1 Kbyte file buffers reserved for ADFS in order to speed up operations on open files. A value of 1 sets a default value appropriate to the computer's RAM size; a value of 0 disables fast buffering on open files.

```
*Configure ADFSbuffers n
```

*Configure ADFSDirCache

*Configure ADFSDirCache sets the configured amount of memory reserved for the directory cache. A value of 0 sets a default value appropriate to the computer's RAM size.

```
*Configure ADFSDirCache size[K]
```

*Configure Baud

*Configure Baud sets the configured baud rate for the serial port.

```
*Configure Baud n
```

*Configure Boot

*Configure Boot sets the configured boot action so that a power on, reset or Ctrl Break runs a boot file.

```
*Configure Boot
```

*Configure BST

*Configure BST sets the computer to use British Summer Time, and is provided only on machines configured for the UK territory.

```
*Configure BST
```

*Configure Cache

*Configure Cache sets the configured cache state to be on or off.

```
*Configure Cache On|Off
```

*Configure Caps

*Configure Caps sets the configured value for Caps Lock to ON.

```
*Configure Caps
```

*Configure Country

*Configure Country sets the configured alphabet and keyboard layout.

```
*Configure Country country_name
```

*Configure Data

*Configure Data sets the configured data word format for the serial port.

```
*Configure Data n
```

*Configure Delay

*Configure Delay sets the configured delay before keys start to auto-repeat.

```
*Configure Delay n
```

*Configure Dir

*Configure Dir sets the configured disc mounting so that discs are mounted at power on.

```
*Configure Dir
```

*Configure Drive

*Configure Drive sets the configured number of the drive that is selected at power on.

```
*Configure Drive n
```

*Configure DST

*Configure DST sets the configured value for daylight saving time to ON.

The time zone is set when you configure your computer's territory, rather than by this command.

```
*Configure DST
```

*Configure DumpFormat

*Configure DumpFormat sets the configured format used by the *Dump, *List and *Type commands.

```
*Configure DumpFormat n
```

*Configure FileSystem

*Configure FileSystem sets the configured filing system to be used at power on or hard reset.

```
*Configure FileSystem fs_name|fs_number
```

*Configure Floppies

*Configure Floppies sets the configured number of floppy disc drives recognised at power on.

```
*Configure Floppies n
```

*Configure FontMax

*Configure FontMax sets the configured maximum size of the font cache.

```
*Configure FontMax mK|n
```

*Configure FontMax1

*Configure FontMax1 sets the maximum height at which to scale from a bitmap font rather than from an outline font.

```
*Configure FontMax1 max_height
```

*Configure FontMax2

*Configure FontMax2 sets the maximum height at which to scale from outlines to anti-aliased bitmaps, rather than to 1 bit per pixel bitmaps.

```
*Configure FontMax2 max_height
```

*Configure FontMax3

*Configure FontMax3 sets the maximum height at which to retain bitmaps in the cache, rather than the outlines from which they were converted.

```
*Configure FontMax3 max_height
```

*Configure FontMax4

*Configure FontMax4 sets the maximum width at which to use horizontal subpixel anti-aliasing.

```
*Configure FontMax4 max_width
```

*Configure FontMax5

*Configure FontMax5 sets the maximum height at which to use vertical subpixel anti-aliasing.

```
*Configure FontMax5 max_height
```

*Configure FontSize

*Configure FontSize sets the configured amount of memory reserved for the font cache.

```
*Configure FontSize sizeK
```

*Configure FS

*Configure FS sets the configured default file server for the NetFS.

```
*Configure FS file_server
```

*Configure GMT

*Configure GMT sets the computer to use Greenwich Mean Time, and is provided only on machines configured for the UK territory.

```
*Configure GMT
```

*Configure HardDiscs

*Configure HardDiscs sets the configured number of ST506 hard disc drives recognised at power on. These disc drives are the standard ones fitted to early models of RISC OS computers (e.g. the Archimedes 400 series).

```
*Configure HardDiscs n
```

*Configure IDEDiscs

*Configure IDEDiscs sets the configured number of IDE hard disc drives recognised at power on. These disc drives are the standard ones fitted to more recent models of RISC OS computers.

```
*Configure IDEDiscs n
```

*Configure Ignore

*Configure Ignore sets the configured printer ignore character.

```
*Configure Ignore [ASCII_code]
```

*Configure Language

*Configure Language sets the configured language used at power on.

```
*Configure Language module_no
```

*Configure Lib

*Configure Lib sets the configured library selected by NetFS after logon (0 for the default library, 1 for $.ArthurLib).

```
*Configure Lib [0 | 1]
```

*Configure Loud

*Configure Loud sets the configured volume for the beep to its loudest volume.

```
*Configure Loud
```

*Configure Mode

*Configure Mode sets the configured screen mode used by the machine. It is identical to the command *Configure WimpMode.

```
*Configure Mode screen_mode
```

*Configure MonitorType

*Configure MonitorType sets the configured monitor type.

```
*Configure MonitorType n|Auto
```

*Configure MouseStep

*Configure MouseStep sets the configured value for how fast the pointer moves as you move the mouse.

```
*Configure MouseStep n
```

*Configure NoBoot

*Configure NoBoot sets the configured boot action so that a Shift power on, Shift reset or Shift Break runs a boot file.

```
*Configure NoBoot
```

*Configure NoCaps

*Configure NoCaps sets the configured value for Caps Lock to OFF.

```
*Configure NoCaps
```

*Configure NoDir

*Configure NoDir sets the configured disc mounting so that discs are not mounted at power on.

```
*Configure NoDir
```

*Configure NoDST

*Configure NoDST sets the configured value for daylight saving time to OFF.

The time zone is set when you configure your computer's territory, rather than by this command.

```
*Configure NoDST
```

*Configure NoScroll

*Configure NoScroll sets the configured scrolling so the screen does not scroll upwards at the end of a line.

```
*Configure NoScroll
```

*Configure Print

*Configure Print sets the configured default destination for printed output.

```
*Configure Print n
```

*Configure PS

*Configure PS sets the configured default network printer server.

```
*Configure PS printer_server
```

*Configure Quiet

*Configure Quiet sets the configured volume for the beep to half its loudest volume.

```
*Configure Quiet
```

*Configure RamFSSize

*Configure RamFSSize sets the configured amount of memory reserved for the RAM Filing System to use.

```
*Configure RamFSSize mK|n
```

*Configure Repeat

*Configure Repeat sets the configured interval between the generation of auto-repeat keys.

```
*Configure Repeat n
```

*Configure RMASize

*Configure RMASize sets the configured extra area of memory reserved for relocatable modules

```
*Configure RMASize mK|n
```

*Configure ScreenSize

*Configure ScreenSize sets the configured amount of memory reserved for screen display.

```
*Configure ScreenSize mK|n
```

*Configure Scroll

*Configure Scroll sets the configured scrolling so the screen scrolls upwards at the end of a line.

```
*Configure Scroll
```

*Configure ShCaps

*Configure ShCaps sets the configured value for Caps Lock to ON, Shift producing lower case letters.

```
*Configure ShCaps
```

*Configure SoundDefault

*Configure SoundDefault sets the configured speaker setting, volume and voice.

```
*Configure SoundDefault speaker volume voice_number
```

*Configure SpriteSize

*Configure SpriteSize sets the configured amount of memory reserved for the system sprite area.

```
*Configure SpriteSize mK|n
```

*Configure Step

*Configure Step sets the configured step rate of one or all floppy disc drives.

```
*Configure Step n [drive]
```

*Configure Sync

*Configure Sync sets the configured type of synchronisation for vertical sync output.

```
*Configure Sync 0|1
```

*Configure SystemSize

*Configure SystemSize sets the configured extra area of memory reserved for the system heap.

```
*Configure SystemSize mK|n
```

*Configure Territory

*Configure Territory sets the configured default territory for the machine.

```
*Configure Territory territory
```

*Configure Truncate

*Configure Truncate sets the configured value for whether or not filenames are truncated when too long for a filing system to handle.

```
*Configure Truncate On|Off
```

*Configure TV

*Configure TV sets the configured vertical screen alignment and screen interlace.

```
*Configure TV [vert_align[[,]interlace]]
```

*Configure WimpAutoMenuDelay

*Configure WimpAutoMenuDelay sets the configured time the pointer must rest over a menu item before its submenu (if any) is automatically opened.

```
*Configure WimpAutoMenuDelay delay
```

*Configure WimpDoubleClickDelay

*Configure WimpDoubleClickDelay sets the configured time after a single click during which a double click is accepted.

```
*Configure WimpDoubleClickDelay delay
```

*Configure WimpDoubleClickMove

*Configure WimpDoubleClickMove sets the configured distance from the position of a single click within which a double click is accepted.

```
*Configure WimpDoubleClickMove distance
```

*Configure WimpDragDelay

*Configure WimpDragDelay sets the configured time after a single click after which a drag is started.

```
*Configure WimpDragDelay delay
```

*Configure WimpDragMove

*Configure WimpDragMove sets the configured distance from the position of a single click that the pointer has to move for a drag to be started.

```
*Configure WimpDragMove distance
```

*Configure WimpFlags

*Configure WimpFlags sets the configured behaviour of windows when dragged, and of error boxes:

Bit	Meaning when set
0	window position drags are continuously redrawn
1	window resizing drags are continuously redrawn
2	horizontal scroll drags are continuously redrawn
3	vertical scroll drags are continuously redrawn
4	no beep is generated when an error box appears

5	windows can be dragged partly off screen to right and bottom
6	windows can be dragged partly off screen in all directions
7	open submenus automatically

```
*Configure WimpFlags n
```

*Configure WimpMenuDragDelay

*Configure WimpMenuDragDelay sets the configured time before an automatically opened submenu is closed. During this time you can move the pointer over other menu entries without closing the submenu, making it easy to reach the submenu.

```
*Configure WimpMenuDragDelay delay
```

*Configure WimpMode

*Configure WimpMode sets the configured screen mode used by the machine. It is identical to the command *Configure Mode.

```
*Configure WimpMode screen_mode
```

*Continue

*Continue resumes execution after a breakpoint, using the saved state.

```
*Continue
```

*Copy

*Copy makes a copy between directories of any object(s) that match the given wildcard specification. Options are taken from the system variable Copy$Options, and those given to the command.

Options (use '~' to force off, eg ~C):		**Default**
A(ccess)	Force destination access to same as source	ON
C(onfirm)	Prompt for confirmation of each copy	ON
D(elete)	Delete the source object after copy	OFF
F(orce)	Force overwriting of existing objects	OFF
L(ook)	Look at destination before loading source file	OFF
N(ewer)	Copy only if source more recent than destination	OFF
P(rompt)	Prompt for disc to be changed as needed in copy	OFF
Q(uick)	Use application workspace as a buffer	OFF
R(ecurse)	Copy subdirectories and contents	OFF
S(tamp)	Restamp date-stamped files after copying	OFF
(s)**T**(ructure)	Copy only the directory structure	OFF
V(erbose)	Print information on each object copied	ON

```
*Copy source_spec destination_spec [[~]options]
```

*CopyBoot

*CopyBoot copies the boot block from one MS-DOS floppy disc over the boot block of another.

```
*CopyBoot source_drive dest_drive
```

*Count

*Count adds up the size of data held in one or more objects that match the given wildcard specification. Options are taken from the system variable Count$Options, and those given to the command.

Options (use '~' to force off, eg ~C):		**Default**
C(onfirm)	Prompt for confirmation of each count	OFF
R(ecurse)	Count subdirectories and contents	ON
V(erbose)	Print information on each file counted	OFF

```
*Count object_spec [[~]options]
```

*Countries

*Countries lists all the countries currently supported.

```
*Countries
```

*Country

*Country selects the appropriate alphabet and keyboard layout for a given country.

```
*Country [country_name]
```

*Create

*Create reserves space for a new file. No data is transferred to the file. The optional load and execution addresses and length are in hexadecimal.

```
*Create filename [length [exec_addr [load_addr]]]
```

*Debug

*Debug enters the debugger. Type `Quit` to exit.

```
*Debug
```

*Defect

*Defect reports what object contains a defect, or (if none) marks the defective part of the disc so it will no longer be used.

```
*Defect disc_spec disc_addr
```

*Delete

*Delete erases the single named file or empty directory.

```
*Delete object_spec
```

*Desktop

*Desktop initialises all desktop facilities, then starts the Desktop. It also runs an optional * command or file of * commands.

```
*Desktop [command|-File filename]
```

*Desktop_...

*Desktop_... commands (except for *Desktop_SetPalette: see below) are for internal use only, and you should not use them.

*Desktop_SetPalette

*Desktop_SetPalette alters the current Wimp palette.

```
*Desktop_SetPalette RGB0 ... RGB15 RGBbor RGBms1 ... RGBms3
```

*Dir

*Dir selects a directory (by default the user root directory) as the current directory on a filing system.

```
*Dir [directory]
```

*Dismount

*Dismount ensures that it is safe to finish using a disc by closing all its files, unsetting all its directories and libraries, forgetting its disc name (if a floppy disc) and parking its read/write head.

```
*Dismount [disc_spec]
```

*DOSMap

*DOSMap specifies a mapping between an MS-DOS extension and a RISC OS file type. If the only parameter given is an MS-DOS extension, then the mapping (if any) for that extension is cancelled. If no parameter is given, then all current mappings are listed.

The mappings are only retained until the next reset.

```
*DOSMap [MS-DOS_extension [file_type]]
```

*Drive

*Drive sets the current drive if NoDir is set.

```
*Drive drive
```

*Dump

*Dump displays the contents of a file, in hexadecimal and ASCII codes. The optional file offset and start address are in hexadecimal.

```
*Dump filename [file_offset [start_address]]
```

*Echo

*Echo displays a string on the screen (after translating it using OS_GSTrans).

```
*Echo string
```

*EnumDir

EnumDir creates a file of object leafnames from a directory that match the wildcarded pattern (by default '').

```
*EnumDir directory output_file [pattern]
```

*Error

*Error generates an error with the given error number and explanatory text.

```
*Error [error_no] text
```

*Eval

*Eval evaluates an integer, logical, bit or string expression.

The expression can use the following operators:

+	addition or string concatenation
-, *, /, MOD	integer operations
=, <, >, <=, >=, <>	string or integer comparison
<<, >>	arithmetic shift left and right
>>>	logical shift right
STR, VAL	conversion between strings and integers
AND, OR, EOR, NOT	(bitwise) logical operators
RIGHT, LEFT	substring extraction
LEN	string length

You can also use brackets.

```
*Eval expression
```

*Ex

*Ex lists all the objects in a directory (by default the current directory) together with their corresponding file information.

```
*Ex [directory]
```

*Exec

*Exec instructs the operating system to take its input from the specified file. If no parameter is given, the current exec file is closed.

```
*Exec [filename]
```

*FileInfo

*FileInfo gives full file information for the specified object(s).

```
*FileInfo object_spec
```

*Filer_Action

*Filer_Action is used to start a Filer_Action task running. This command is intended for use only within desktop applications.

```
*Filer_Action
```

*Filer_Boot

*Filer_Boot boots the specified desktop application by running its !Boot file.

```
*Filer_Boot application
```

*Filer_CloseDir

*Filer_CloseDir closes a directory display on the Desktop, and any of its sub-directories.

```
*Filer_CloseDir directory
```

*Filer_OpenDir

*Filer_OpenDir opens a directory display on the Desktop. Switches are:

Switch	Alternative	Meaning
-SmallIcons	-si	display small icons
-LargeIcons	-li	display large icons
-FullInfo	-fi	display full information
-SortByName	-sn	display sorted by name
-SortByType	-st	display sorted by type
-SortByDate	-sd	display sorted by date
-SortBySize	-ss	display sorted by size

Each parameter – except for the switches – can be preceded by a keyword:

Keyword	Alternative	Precedes parameter
-directory	-dir	*directory*
-topleftx	-x0	*x*
-toplefty	-y0	*y*
-width	-w	*width*
-height	-h	*height*

```
*Filer_OpenDir directory [x y [width height]] [switches]
```

*Filer_Run

*Filer_Run runs the specified desktop application by running its !Run file.

```
*Filer_Run application
```

*Filters

*Filters lists all currently active pre- and post-Wimp_Poll filters.

```
*Filters
```

*FontCat

*FontCat lists the fonts available in Font$Path, or in the given directory.

```
*FontCat [directory]
```

*FontInstall

*FontInstall adds a directory to the list of those scanned for fonts. It also rescans the directory, even if it was already known to the Font Manager.

```
*FontInstall [directory]
```

*FontLibrary

*FontLibrary sets a directory as the font library, replacing the previous library in the list of those scanned for fonts.

```
*FontLibrary directory
```

*FontList

*FontList displays the fonts in the font cache, its size, and its free space.

```
*FontList
```

*FontRemove

*FontRemove removes a directory from the list of those scanned for fonts.

```
*FontRemove [directory]
```

*Format

*Format prepares a new floppy disc for use, or erases a used disc for re-use.

Formats are:

F	1.6M	RISC OS 3	77-entry directories, new map
E	800K	RISC OS	77-entry directories, new map
D	800K	Arthur 1.2	77-entry directories, old map
L	640K	all ADFS	47-entry directories, old map
Q	1.44M	MS-DOS 3.20	double sided
M	720K	MS-DOS 3.20	double sided
H	1.2M	MS-DOS 3	double sided
N	360K	MS-DOS 2, 3	double sided

P	180K	MS-DOS 2, 3	single sided
T	320K	MS-DOS 1, 2, 3	double sided
U	160K	MS-DOS 1, 2, 3	single sided
A	720K	Atari	double sided
B	360K	Atari	single sided

Early models of RISC OS computers cannot use F, Q and H formats. You need a 5¼" disc drive to use H, N, P, T and U formats. RISC OS 2.0 only supports L, D and E formats.

The default is to use F-format if possible; otherwise E-format is used.

```
*Format drive [format [disc_name]] [Y]
```

*Free

*Free displays the total free space remaining on a disc. For NetFS, *Free displays a user's total free space, as well as the total free space for the disc.

```
*Free [disc_spec]
*Free [:file_server] [user_name]          (NetFS syntax)
```

*FS

*FS selects the current file server, restoring that file server's context (for example, its current directory). If no argument is supplied, information is given about your current file server, followed by any non-current servers.

```
*FS [[:]file_server]
```

*FX

*FX calls OS_Byte to alter status variables, and to perform other closely related actions.

```
*FX reason_code [[,] r1 [[,] r2]]
```

*Go

*Go calls machine code at the given address (default &8000), passing it an optional environment string.

```
*Go [hexadecimal_address] [ ; environment]
```

*GOS

*GOS calls command line mode, and hence allows you to type * Commands.

```
*GOS
```

*Help

*Help gives brief information about each command. There are also some special keywords:

`*Help Commands`	lists all the available utility commands
`*Help FileCommands`	lists all the commands relating to filing systems
`*Help Modules`	lists the names of all currently loaded modules, with their version numbers and creation dates
`*Help Station`	displays the current network and station numbers of your machine
`*Help Syntax`	explains the format used for syntax messages

`*Help [keyword]`

*I am

*I am selects NetFS and logs you on to a file server. Your user name and password are checked by the file server against the password file before allowing you access.

`*I am [[:]file_server_number|:file_server_name] user_name [[:Return]password]`

*IconSprites

*IconSprites merges the sprites in a file with those in the Wimp sprite area.

`*IconSprites filename`

*If

*If conditionally executes a * Command, depending on the value of an expression.

`*If expression Then command [Else command]`

*Ignore

*Ignore sets the printer ignore character.

`*Ignore [ASCII_code]`

*Info

*Info gives file information for the specified object(s).

`*Info object_spec`

*InitStore

*InitStore fills user memory with the specified value or register value, or with the value &E6000010 (which is an illegal instruction) if no parameter is given.

```
*InitStore [value|reg]
```

*Key

*Key assigns a string to a function key.

```
*Key keynumber [string]
```

*Keyboard

*Keyboard selects the keyboard layout for a given country. With no parameter, this command displays the currently selected keyboard layout.

```
*Keyboard [country_name]
```

*LCat

*LCat lists all the objects in the named library subdirectory (by default the current library).

```
*LCat [directory]
```

*LEx

*LEx lists all the objects in the named library subdirectory (by default the current library) together with their file information.

```
*LEx [directory]
```

*Lib

*Lib selects a directory (the default is filing system dependent) as the current library on a filing system.

```
*Lib [directory]
```

*List

*List displays the contents of a file using the configured DumpFormat. Each line is numbered.

```
*List [-File] filename [-TabExpand]
```

*ListFS

*ListFS displays a list of the file servers which NetFS is able to recognise.

```
*ListFS
```

*ListPS

*ListPS lists all the currently available printer servers, optionally showing their status as well.

```
*ListPS [-full]
```

*Load

*Load loads the named file. The optional load address is in hexadecimal.

```
*Load filename [load_addr]
```

*LoadFontCache

*LoadFontCache loads a file back into the font cache that was previously saved using *SaveFontCache.

```
*LoadFontCache filename
```

*Logon

*Logon logs you on to a file server. Your user name and password are checked by the file server against the password file before allowing you access.

```
*Logon [[:]file_server_number|:file_server_name] user_name [[:Return]password]
```

*Map

*Map displays a disc's free space map.

```
*Map [disc_spec]
```

*Memory

*Memory displays the values in memory, in bytes if the optional B is given, or in words otherwise.

```
*Memory [B] addr1|reg1
*Memory [B] addr1|reg1 [+|-]addr2|reg2
*Memory [B] addr1|reg1 +|-addr2|reg2 +addr3|reg3
```

*MemoryA

*MemoryA displays and alters memory in bytes, if the optional B is given, or in words otherwise.

```
*MemoryA [B] addr|reg1 [value|reg2]
```

*MemoryI

*MemoryI disassembles memory into ARM instructions.

```
*MemoryI addr1|reg1
*MemoryI addr1|reg1 [+|-]addr2|reg2
*MemoryI addr1|reg1 +|-addr2|reg2 +addr3|reg3
```

*Modules

*Modules displays information about all installed relocatable modules.

```
*Modules
```

*Mount

*Mount prepares a disc for general use by setting the current directory to its root directory, setting the library directory (if it is currently unset) to $.Library, and unsetting the User Root Directory. For NetFS, *Mount selects a disc from the file server by setting the current directory, the library directory and the User Root Directory.

```
*Mount [disc_spec]
*Mount [:]disc_spec        (NetFS syntax)
```

*NameDisc

*NameDisc (or alternatively, *NameDisk) changes a disc's name.

```
*NameDisc disc_spec new_name
```

*Net

*Net selects the Network Filing System as the current filing system.

```
*Net
```

*NoDir

*NoDir unsets the current directory.

```
*NoDir
```

*NoLib

*NoLib unsets the library directory.

```
*NoLib
```

*NoURD

*NoURD unsets the User Root Directory (URD).

```
*NoURD
```

*Obey

*Obey executes a file of * commands. Argument substitution is performed on each line, using parameters passed in the command. With the -v option, each line is displayed before execution. With the -c option, the file is cached and executed from memory.

```
*Obey [[-v][-c] [filename [parameters]]]
```

*Opt 1

*Opt 1 sets the filing system message level (for operations involving loading, saving or creating a file) for the current filing system:

*Opt 1,0	No filing system messages
*Opt 1,1	Filename printed
*Opt 1,2	Filename, hexadecimal addresses and length printed
*Opt 1,3	Filename, and either datestamp and length, or hexadecimal load and exec addresses printed

```
*Opt 1 [[,]n]
```

*Opt 4

*Opt 4 sets the boot action for the current filing system:

*Opt 4,0	No boot action
*Opt 4,1	*Load boot file
*Opt 4,2	*Run boot file
*Opt 4,3	*Exec boot file

```
*Opt 4 [[,]n]
```

*Pass

*Pass changes your password on your current fileserver.

```
*Pass [old_password [new_password]]
```

*Pin

*Pin adds a file, application or directory to the desktop pinboard, positioning its icon at the given coordinates (in OS units).

```
*Pin object x y
```

*Pinboard

*Pinboard is for internal use only, and you should not use it.

*PipeCopy

*PipeCopy copies a file one byte at a time to one or two output files. It is provided for use with pipes. You should use *Copy to copy normal files.

```
*PipeCopy source_file destination_file [destination_file]
```

*PoduleLoad

Copies a file into an expansion card's RAM

```
*PoduleLoad expansion_card_number filename [offset]
```

*Podules

*Podules displays a list of the installed expansion cards and extension ROMs.

```
*Podules
```

*PoduleSave

*PoduleSave copies an expansion card's ROM into a file.

```
*PoduleSave expansion_card_number filename size [offset]
```

*Pointer

*Pointer turns the mouse pointer on or off.

```
*Pointer [0|1]
```

*Print

*Print displays the contents of a file by sending each byte to the VDU.

```
*Print filename
```

*PS

*PS changes the default printer server, checking that the new one exists.

```
*PS printer_server
```

*QSound

*QSound generates a sound after a given delay.

```
*QSound channel amplitude pitch duration beats
```

*Quit

*Quit exits from the current application.

```
*Quit
```

*Ram

*Ram selects the RAM filing system as the current filing system.

```
*Ram
```

*Remove

*Remove deletes a named file. No error message is generated if the file does not exist.

```
*Remove filename
```

*RemoveTinyDir

*RemoveTinyDir removes a file, application or directory icon that was previously placed on the icon bar by a *AddTinyDir command. If no pathname is given, all such icons are removed from the icon bar.

```
*RemoveTinyDir [object]
```

*Rename

*Rename changes the name of an object, within the same storage unit.

To move objects between discs or filing systems, use the *Copy command with the **D**(elete) option set.

```
*Rename object new_name
```

*ResourceFS

*ResourceFS selects the Resource Filing System as the current filing system.

```
*ResourceFS
```

*RMClear

*RMClear deletes all relocatable modules from the module area. Use this command only with extreme caution, as it is so drastic in its effects.

```
*RMClear
```

*RMEnsure

*RMEnsure checks that a module is present and is the given version (or a more recent one). The command is executed if this is not the case.

```
*RMEnsure module_title version_number [command]
```

*RMFaster

*RMFaster makes a module faster by copying it from ROM to RAM.

```
*RMFaster module_title
```

*RMInsert

*RMInsert reverses the action of a previous *Unplug command, but without reinitialising any modules.

```
*RMInsert module_title [ROM_section]
```

*RMKill

*RMKill deactivates and deletes a relocatable module. Use this command only with extreme caution, as it may be drastic in its effects.

```
*RMKill module_title[%instantiation]
```

*RMLoad

*RMLoad loads and initialises a relocatable module.

```
*RMLoad filename [module_init_string]
```

*RMReInit

*RMReInit reinitialises a relocatable module, reversing the action of any previous *RMKill or *Unplug command. Use this command only with extreme caution, as it may be drastic in its effects.

```
*RMReInit module_title [module_init_string]
```

*RMRun

*RMRun loads, initialises and runs a relocatable module.

*RMRun runs a relocatable module, first loading it if necessary.

```
*RMRun filename
```

*RMTidy

*RMTidy collects together free space in the module area by moving and reinitialising all the modules it contains. Use this command only with extreme caution, as it is so drastic in its effects

```
*RMTidy
```

*ROMModules

*ROMModules displays information about all relocatable modules currently installed in ROM.

```
*ROMModules
```

*Run

*Run loads and executes a file, optionally passing a list of parameters to it.

```
*Run filename [parameters]
```

*Save

*Save copies the given area of memory to the named file. The length and addresses are in hexadecimal by default.

```
*Save filename start_addr end_addr [exec_addr [load_addr]]
*Save filename start_addr + length [exec_addr [load_addr]]
```

*SaveFontCache

*SaveFontCache saves the current contents of the font cache to a file.

```
*SaveFontCache filename
```

*SChoose

*SChoose selects a sprite from the system sprite area for use in subsequent sprite plotting operations.

```
*SChoose sprite_name
```

*SCopy

*SCopy makes a copy of the source sprite within the system sprite area, and renames it as the destination sprite.

```
*SCopy source_sprite_name dest_sprite_name
```

*ScreenLoad

*ScreenLoad loads the contents of a sprite file into the graphics window.

```
*ScreenLoad filename
```

*ScreenSave

*ScreenSave saves the contents of the graphics window and its palette to a file.

```
*ScreenSave filename
```

*SCSI

*SCSI selects the SCSI Filing System as the current filing system. This is only available if you have an Acorn SCSI expansion card fitted.

```
*SCSI
```

*SDelete

*SDelete deletes one or more sprites from the system sprite area.

```
*SDelete sprite_name1 [sprite_name2...]
```

*SDisc

*SDisc selects a disc from the current file server by setting the current directory, the library directory and the User Root Directory.

```
*SDisc [:]disc_spec
```

*Set

*Set assigns a string value to a system variable.

`*Set` *varname value*

*SetEval

*SetEval evaluates an expression and assigns its value to a system variable.

`*SetEval` *varname expression*

*SetMacro

*SetMacro assigns an expression to a system variable. The expression is evaluated each time the variable is used.

`*SetMacro` *varname expression*

*SetPS

*SetPS changes the default printer server, without checking that the new one exists.

`*SetPS` *printer_server*

*SetType

*SetType sets the file type of the named file to the given textual file type or hexadecimal number. If the file does not have a date stamp, then it is stamped with the current time and date.

The command `*Show File$Type*` displays a list of valid file types.

`*SetType` *filename file_type*

*SFlipX

*SFlipX reflects a sprite in the system sprite area about its x axis.

`*SFlipX` *sprite_name*

*SFlipY

*SFlipY reflects a sprite in the system sprite area about its y axis.

`*SFlipY` *sprite_name*

*SGet

*SGet gets a sprite from a rectangular area of the screen, defined by the two most recent graphics positions (inclusive), and then saves it in the system sprite area.

```
*SGet sprite_name
```

*Shadow

*Shadow sets which bank of screen memory is used on subsequent mode changes.

```
*Shadow [0|1]
```

*ShellCLI

*ShellCLI invokes a command shell from a Wimp program, starting it as a Wimp task.

```
*ShellCLI
```

*ShellCLI_Task

*ShellCLI_Task runs an application in a window. This command is intended for use only within desktop applications.

*ShellCLI_TaskQuit

*ShellCLI_TaskQuit quits the current task window. This command is intended for use only within desktop applications.

*Show

*Show displays the name, type and current value of any system variables matching the name given. If no name is given, all system variables are displayed.

```
*Show [variable_spec]
```

*ShowFree

*ShowFree shows within a desktop window the amount of free space on a device.

```
*ShowFree -fs fs_name device
```

*ShowRegs

*ShowRegs displays the register contents for the saved state.

```
*ShowRegs
```

*Shut

*Shut closes all open files on all filing systems.

```
*Shut
```

*ShutDown

*ShutDown closes all open files on all filing systems, logs off all NetFS file servers and parks hard disc heads.

```
*ShutDown
```

*SInfo

*SInfo displays information on the system sprite workspace.

```
*SInfo
```

*SList

*SList lists the names of all the sprites in the system sprite area.

```
*SList
```

*SLoad

*SLoad loads a sprite file into the system sprite area.

```
*SLoad filename
```

*SMerge

*SMerge merges the sprites in a file with those in the system sprite area.

```
*SMerge filename
```

*SNew

*SNew deletes all the sprites in the system sprite area.

```
*SNew
```

*Sound

*Sound generates an immediate sound.

```
*Sound channel amplitude pitch duration
```

*Speaker

*Speaker turns the internal speaker(s) on or off.

```
*Speaker On|Off
```

*Spool

*Spool sends everything appearing on the screen to the specified file. If no filename is given, the current spool file is closed.

```
*Spool [filename]
```

*SpoolOn

*SpoolOn adds everything appearing on the screen to the end of an existing file. If no filename is given, the current spool file is closed.

```
*SpoolOn [filename]
```

*SRename

*SRename renames a sprite within the system sprite area.

```
*SRename old_sprite_name new_sprite_name
```

*SSave

*SSave saves the system sprite area as a sprite file.

```
*SSave filename
```

*Stamp

*Stamp sets the date stamp on a file to the current time and date. If the file has not previously been date stamped, it is also given file type Data (&FFD).

```
*Stamp filename
```

*Status

*Status displays the value of a configuration option in the CMOS RAM. If no option is specified, the values of all configuration options are shown.

```
*Status [option]
```

*Stereo

*Stereo sets the position in the stereo image of a sound channel.

```
*Stereo channel position
```

*TaskWindow

*TaskWindow starts a background task, which will open a task window if it needs to get input, or to output a character to the screen.

```
*TaskWindow [command] [[-wimpslot] nK] [[-name] taskname] [-ctrl] [-display] [-quit]
```

*Tempo

*Tempo sets the Sound system tempo.

```
*Tempo tempo
```

max 65535
0 → &FFFF Default = &1000

*Territories

*Territories lists the currently loaded territory modules.

```
*Territories
```

*Time

*Time displays the day, date and time of day.

```
*Time
```

*Tuning

*Tuning alters the overall tuning of the Sound system. A value of zero resets the default tuning.

```
*Tuning relative_change
```

*TV

*TV adjusts the vertical screen alignment and screen interlace.

```
*TV [vert_align[[,]interlace]]
```

*Type

*Type displays the contents of the named file in the configured DumpFormat.

```
*Type [-File] filename [-TabExpand]
```

*Unplug

*Unplug kills and disables all copies of a ROM resident module. If no parameters are given, the unplugged ROM modules are listed.

```
*Unplug [module_title [ROM_section]]
```

*Unset

*Unset deletes a system variable.

```
*Unset variable_spec
```

*Up

*Up moves the current directory up the directory structure by the specified number of levels.

```
*Up [levels]
```

*URD

*URD sets the User Root Directory.

```
*URD [directory]
```

*Verify

*Verify checks that the whole disc (by default the current disc) is readable.

```
*Verify [disc_spec]
```

*Voices

*Voices displays a list of the installed voices by name and number, and shows which voice is assigned to each of the eight channels.

```
*Voices
```

*Volume

*Volume sets the maximum overall volume of the Sound system.

```
*Volume volume
```

max 127

*WimpMode

*WimpMode changes the current screen mode used by the Desktop.

```
*WimpMode screen_mode
```

*WimpPalette

*WimpPalette uses a palette file to set the Wimp's colour palette.

```
*WimpPalette filename
```

*WimpSlot

*WimpSlot changes the memory allocation for the current Wimp task.

```
*WimpSlot [-min] minsize[K] [[-max] maxsize[K]]
```

*WimpTask

*WimpTask starts up a new task from within another task.

```
*WimpTask command
```

*WimpWriteDir

*WimpWriteDir sets the direction of text entry for writable icons to either the default for the current territory, or the reverse of that.

```
*WimpWriteDir 0|1
```

*Wipe

*Wipe deletes one or more objects that match the given wildcard specification. Options are taken from the system variable Wipe$Options, and those given to the command.

Options (use '~' to force off, eg ~C):		**Default**
C(onfirm)	Prompt for confirmation of each deletion	ON
F(orce)	Force deletion of locked objects	OFF
R(ecurse)	Delete subdirectories and contents	OFF
V(erbose)	Print information on each object deleted	ON

```
*Wipe object_spec [[~]options]
```

Appendices

Appendix A: Upgrading from RISC OS 2.00

Many changes have been introduced into RISC OS. If you have used RISC OS 2.00, you will find the new version very familiar; this summary will acquaint you quickly with the new features to look out for, which are all documented fully in the appropriate chapters of this guide.

Applications in ROM

The most important change introduced into RISC OS is the incorporation of several applications, including those you are most likely to use, into the computer's ROM. This means that instead of loading these applications from disc you run them from the ROM, so that not only do they load more quickly, they also occupy much less space in RAM (they do still need a little). This is particularly important if you have a 1MB computer.

Click on the Apps icon on the icon bar to display the applications stored in ROM.

Changes have also been made in many of the applications themselves, especially to Draw, Paint, Edit and Alarm, which have been enhanced. These are documented in the *Applications Guide*.

The desktop

If you have used RISC OS before, you will find the desktop quite familiar. One detail that you will notice straight away is that when you click a mouse button once, the pointer shape changes to a double arrow. As long as it stays double, the computer will recognise a second click as part of a double click.

The Filer menu and Filer operations have been considerably enhanced. New features include:

- Filer actions such as formatting, verifying, copying and deletion can now take place 'in the background', allowing you to get on with something else while lengthy activities proceed.
- A 'find' facility enabling you to search directory structures for files and subdirectories.
- Setting of a file's type and date from the desktop.

- Dragging the scroll bar with Adjust now puts the window into 2D scrolling mode. The mouse can alter both the horizontal and vertical view positions on the document.
- Changes in the way access is controlled.
- New options – Force and Newer – give you greater control over copying of files.
- You can now select a group of objects by dragging a box round them.
- Pressing Shift while clicking on the toggle full size icon displays the window full size but leaves the icon bar visible.

Windows can be dragged partially off the screen, and files can be run by dragging them onto the icon bar (provided an appropriate application can be found).

Task manager

A new feature in the Task manager enables easy creation of desktop boot files, so that you can start up your computer the way you want it without needing to know anything about the Command Line.

A Shutdown option now lets you shutdown your computer in a controlled way, allowing you to save all your files before switching off.

Printing

Printers are now controlled by the Printer manager application. This new application results in much improved printing. There is now a much greater range of printers supported. You can now also have several printer drivers operating at the same time.

Fonts

The standard range of fonts has now been stored in the ROM and can be used with applications without memory penalties. This means that all users can now use fonts. The fonts stored inside the computer are Trinity, Corpus and Homerton.

Pinboard

The icons of files, directories and applications can now be pinned onto the background. This enables them to be found easily without having to remember the directory structure.

Running applications can also be iconised in the same way.

ARM 3 support

There is now support for the ARM 3 processor with *Cache and *Configure Cache commands.

!Configure

The system configuration application has been greatly enhanced and improved. Most *Configure commands can now be performed (with 'instant effect') using this desktop application. There should no longer be any need to use the *Configure command line commands.

DOS and Atari discs supported

RISC OS can now read and write to DOS and Atari format discs. RISC OS also recognises any DOS hard disc partition files you may have created using the Acorn PC Emulator.

Additional disc formatting options for DOS and Atari discs have been added, as has support for high density discs.

F12 key use

The use of the F12 key has changed slightly:

- F12 displays the command line at the bottom of the screen.
- Shift-F12 toggles the icon bar to the front or back of obscuring windows
- Ctrl-F12 displays a Task window
- Shift-Ctrl-F12 shuts down the computer.

Screen modes and monitor types

The number of screen modes and monitor types has been greatly increased.

Appendix B: Getting the best out of 1MB computers

Acorn computers have come a long way since the first BBC Model A, with 16KB of RAM. A 1MB RISC OS computer has 64 times as much memory. However, at the same time, applications have become a lot more powerful and some can use up a large part of your computer's memory, making it hard to get the best advantage of the multi-tasking facilities offered by RISC OS.

In addition, although some RISC OS computers have a hard disc and two or even more floppy disc drives, the majority have only a single floppy disc drive.

This appendix therefore presents some suggestions for getting the best out of 1MB computers without hard discs, including those with only one floppy drive.

Resetting the computer

Some applications require the loading of relocatable modules: software extensions to the operating system. When you remove such an application from the icon bar, it may leave some or all of these modules behind, since they may be needed by another application. However, when you are very short of space, this behaviour – normally helpful – may mean that you do not have enough space for the next application.

It is therefore a good idea to reset the computer before attempting to load an application that will need almost all the computer's RAM. Before doing this, make sure you save any work you have done, as it will be lost from the computer's memory when you reset. To reset the computer, press Ctrl-Break or Ctrl-Reset. Then load the application you want to use.

If you have a 1MB computer with a hard disc containing a boot file that runs some applications each time you switch on, carry out the reset by holding both Ctrl and Shift while pressing Reset; this will prevent the boot sequence from being executed.

Choice of screen mode

The appendix entitled *Screen modes* on page 215 lists the screen modes that are available on RISC OS computers. The table there shows the memory used by each screen mode. If you are very short of memory, you should use mode 12 for a colour display (even if you have a multi-frequency scanning rate monitor). If you are happy with a monochrome display you can save even more memory by using mode 0, 8 or 11 on a standard-resolution monitor or mode 19 on a multi-frequency scanning rate monitor.

Opening directory displays

When you open a display for a directory containing applications, the computer runs the boot file for each application. This loads the applications' sprite files, which then occupy some of the computer's memory. For example, if you have a hard disc and you keep a lot of applications in a single directory, their sprites might take up as much as 30K. If you are very short of memory, you cannot afford to waste this space and you should therefore not open directories containing applications you do not want to use. To achieve this, keep your applications – especially those with large sprite files – in separate directories.

Printing

If you do not intend to do any printing during your session, do not load the Printer manager at all. If you do intend to print, and you are using an application that enables you to print by selecting a menu option (rather than by dragging a file to the printer driver icon), you can save some space by first loading the printer driver and then removing it again. This leaves behind the printer driver module, which is all you actually need in order to print from such an application. You will of course need to do this **after** resetting the computer.

If you are using Edit, you must have the full Printer manager application loaded for Edit to print correctly. Edit will not print with only the printer module loaded.

For non-PostScript printers, the printing process also requires memory to use as a buffer space; the more that is available for this, the faster printing will be. You can increase the free space by temporarily switching to mode 0 while you print.

Finally, note that on non-PostScript printers, printing in landscape format uses more memory than printing in portrait format.

Optimising memory usage

Use the Task manager to display the computer's current memory usage. You can change any of the red bars to release as much memory as possible for applications. Candidates for reduction include:

- Screen memory
- Font cache (provided the application does not make extensive use of fonts; if redrawing the screen takes a long time, you have made the font cache too small)
- System sprites: this can always be reduced to zero except when playing some games.
- Module area.

Using a RAM disc

If your computer has only a single floppy disc drive but more than 1MB of RAM, and the application you want to run uses two floppy discs, you can use some of the available memory to create a RAM disc. Decide which disc you wish to transfer to RAM and insert it into the disc drive. Choose **Free** from the icon bar menu to see how large the RAM disc needs to be, and create a disc of the appropriate size, using the Task manager. Then copy the contents of the floppy disc to the RAM disc.

Before loading a file into the application, double-click on the parts of the application you have transferred into RAM, so that the computer knows that it should find them there. Otherwise, it will look for them on the floppy disc.

Buying more memory

Perhaps the easiest way to increase the useability of your computer is to add additional memory to your computer. Most RISC OS computers can be expanded beyond 1MB. With 2MB or more, memory constraints are no longer a problem and memory saving measures do not have to be employed.

Appendix C: Resetting and power-on

In certain circumstances you will find it necessary to 'reset' (switch off – then on again) your computer. These include:

- When a program or application has 'hung'; nothing is happening, and clicking mouse buttons or typing at the keyboard has no effect.
- When you upgrade your computer by, for example, inserting more memory, changing the system configuration, or connecting a different type of monitor.
- If you have a 1MB computer and wish to use an application that will need nearly all its memory, a reset will remove such things as unwanted relocatable modules which may be using up space you cannot afford.

Resets come in increasing 'strengths', and to understand these you need to know a little about configuration. You have probably already met this through the desktop Configure application (see page 85). Configuration information is stored in memory which is supported by batteries and therefore retains its contents even when the computer is turned off, so that you do not have to set them every time you use it. This memory is sometimes referred to as the CMOS RAM. Configuration 'tells' the computer about, for example:

- What hardware you have in your system: for example, what type of monitor, printer (if any), disc drives or Econet network hardware.
- What language you wish the computer to run when it is switched on. 'Language' here includes the desktop.
- How loud you want the beep to sound.

Resetting the computer involves the use of certain keys on the keyboard and the Reset switch. It sometimes involves switching your computer off and switching it on again while holding down a key. Each of the possible combinations is described in this chapter.

Switching on

When you first switch on the computer it goes through a power-on self test routine. While the test is in progress the screen borders flash red, then blue. If the screen then flashes red again a fault has been detected and startup is halted. Normally the startup proceeds to the desktop display. Any keys held down to alter the CMOS configuration are not detected until the self test has finished.

If you are using a Super VGA monitor, you won't see these self-tests. This is because Super VGA monitors only lock onto the display signal when the self-test is over.

Resetting while switching on

Warning: You should always make sure you have a copy of your configuration saved onto floppy disc; you can then easily restore the computer to your required configuration after the reset. For full details refer to the chapter entitled *Setting the configuration* on page 85.

You can reset the configuration when you switch on the computer. To do this hold down the appropriate key and switch the computer on. Do not release the key until text has appeared on the screen:

R causes some of the computer's CMOS RAM to be reset. The information that is retained and not reset relates to the Econet station number, the country code, and the number of hard and floppy discs and expansion cards you have. Information about these will not be lost when you hold R while switching on. Use this reset when upgrading your computer.

Delete causes **all** the computer's CMOS RAM to be reset to its initial factory values, with the exception of the Econet station number. All bytes relating to expansion cards are cleared, and the country code and numbers of drives are set to:

Floppies	1	One floppy disc drive recognised at power on
HardDiscs	0	No ST506 hard disc drive recognised at power on
IDEDiscs	0	No IDE hard disc drive recognised at power on
Country	UK	UK keyboard and Latin1 character set selected

You should not need to use this reset option.

These actions are sometimes referred to as 'R-power on' and 'Delete-power on' resets.

Setting the monitor type

Both the power on resets set the Monitor Type to Auto. If you have a computer that auto-detects, your monitor will then be auto-configured. See your *Welcome Guide* for more details.

Monitor type Auto also sets the Mode/WimpMode and Sync configuration options to Auto to ensure completely automatic operation.

For other computers that do not auto-detect monitor type, monitor type Auto is equivalent to monitor type zero. If you have a different type of monitor you will then not be able to see the display on your screen, and you will need to follow the original power on reset with a second (different) reset to select the correct monitor type. Switch the machine on with the appropriate key from the numeric pad held down:

0	Standard monochrome or colour monitor
1	Multi frequency monitor
2	64Hz high-resolution monochrome monitor
3	60Hz VGA-type monitor
4	Super VGA-type monitor
5	LCD Liquid crystal displays

No display on your monitor

In a few cases you will still not get a display on your monitor, because the monitor has vertical instead of composite sync. In this case, repeat the reset process, but use the T or Copy key instead of the R or Del key respectively. The same default values are set as before, except for the vertical sync signal, which will now be correct for your monitor. You may then need to set the monitor type again.

In summary, you should go through the following steps, stopping as soon as you get a display:

1. Reset the values by switching on while holding down the R or Delete key.
2. Set the monitor type by switching on while holding down the correct numeric key.
3. Reset the values by switching on while holding down the T or Copy key.
4. Set the monitor type by switching on while holding down the correct numeric key.

Using the Reset switch

The Reset switch can be used in conjunction with a variety of other keys to give you different types of Reset options.

Pressing **Reset** alone causes a 'soft' reset.

Pressing **Shift-Reset** causes a reset and an **autoboot** operation. An autoboot runs a file containing standard startup instructions. However your computer and filing system must have been configured so that this can happen.

Pressing **Ctrl-Reset** causes more of the machine to be reset (a 'hard reset'). If you have a Boot file, it is run automatically if autoboot is enabled.

Pressing *** (on numeric keypad) -Reset** causes the Command Line to be entered, rather than the configured language (such as the Desktop or BASIC). If you have a Boot file set to run, the Boot is performed and the Boot file will define the eventual configured language of the computer.

Pressing *** (on numeric keypad) -Shift-Reset** causes the Command Line mode to be entered. If there is a boot file set to run, it is **not** run. If there is a boot file **not** set to run, it **is** run.

If auto-boot is switched on, you can prevent the boot file being run by holding down the shift key.

Using the Break key

The Break key (to the right of the twelve function keys) can act like Escape in interrupting a program or, in combination with other keys, like the Reset switch. The computer has a Break key as well as a Reset switch so that applications such as emulators can respond differently to them. For example, !65Host uses Break to reset the emulated computer, while Reset still resets the RISC OS computer itself.

Pressing **Shift-Break** causes an autoboot to be performed (unless Boot is configured).

Pressing **Ctrl Break** causes more of the machine to be reset.

Pressing *** (on numeric keypad)-Ctrl-Break** causes the machine to be started up in Command Line mode, rather than the configured language.

Restoring default values

It is sometimes useful to restore all the values to their default settings. (For instance, someone else might use your computer and change the configuration, or the batteries that power the CMOS RAM might become flat.) To restore the default values, switch the machine on with either the R key or the Delete key held down.

Page size

Some of the default values depend on the size of a 'page' of memory. This value depends on how much RAM the computer has. A page is the smallest unit into which memory is split. The page sizes are given on page 152.

R power on

An '**R power on**' preserves the Econet station number, the country code, the number of floppy discs, the number of hard discs and all bytes relating to expansion cards. All other bytes are cleared to zero, and then the following defaults are set:

Configure option	Value	Meaning
Baud	4	Serial port set to 1200 baud
NoBoot		Do not run boot file at power on or reset
No Caps		Caps lock off at power on
Data	4	Serial port set to 8 bit words, no parity, 2 stop bits
Delay	32	32 centisecond delay before keys auto-repeat
NoDirectory		No directory selected by ADFS at power on
DumpFormat	4	Control characters printed using GSRead, top-bit characters printed
FontSize	32K	RAM reserved for font cache
FontMax	0K	No maximum size for font cache
FontMax1	20	Fonts higher than 20 pixels not rescaled from bitmap
FontMax2	15	Fonts higher than 15 pixels not anti-aliased
FontMax3	30	Fonts higher than 30 pixels not cached
FontMax4	0	No horizontal sub-pixel anti-aliasing
FontMax5	0	No vertical sub-pixel anti-aliasing
Ignore	10	ASCII line feed ignored by printers
Language	9	Desktop selected at power on
Mode	Auto	Screen mode 0 selected at power on
MonitorType	Auto	50Hz analogue RGB monitor selected
MouseStep	2	Slow mouse movement
Print	1	Parallel printer port used
PrinterBufferSize	1K	Printer buffer
Quiet		Beep set to half volume
RamFsSize	0K	No memory reserved for RAMFS
Repeat	8	8 centisecond keyboard auto-repeat rate
RMASize	0K	RAM reserved for relocatable modules
ScreenSize	0K	RAM reserved for the display screen

Configure option	Value	Meaning
Scroll		Screen scrolls when the end of a line is reached
SpriteSize	0K	RAM reserved for system sprite pool
Sync	Auto	Composite sync selected
SystemSize	0K	No memory reserved for system heap
TV	0,1	Interlace off
FileSystem	ADFS	ADFS selected at power on
Truncate	on	Truncates long file names for RISC OS
Territory	1	Territory UK
GMT		Greenwich Mean Time
Cache	on	ARM 3 only
ADFSBuffers	4	Sets default according to size of memory
ADFSDirCache	4	Sets default according to size of memory
Drive	0	Drive 0 selected at power on or reset
Floppies	1	Single floppy disc
HardDiscs	0	No ST506 hard disc
IDEDiscs	0	No IDE hard disc
Country	UK	Country UK
Step	3	3ms floppy disc drive step rate
FileServer	254	Default net file server set to 0.254
Library	ArthurLib	Network library set to $.ArthurLib
PrinterServer	235	Default net print server set to 0.235
SoundDefault	1 7 1	Speaker on, maximum volume, voice 1
WimpFlags	111	Windows fully instant when moving
WimpDragDelay		5 * 1/10 second
WimpDragMove		32 OS units
WimpDoubleClickDelay		10 * 1/10 second
WimpDoubleClickMove		32 OS units
WimpAutoMenuDelay		0 * 1/10 second
WimpMenuDragDelay		0 * 1/10 second
WimpMode	Auto	Mode used for desktop on entry

The actual values of these defaults may differ with your computer and its memory size. To see the current settings of your computer, go into the command line by pressing F12 and then type Status and press Return. Press Return again to go back to the desktop.

Be aware that the font values displayed by the *Status command are in pixels, whereas those set using !Configure are in points.

If your computer does not automatically detect its monitor type, the AUTO setting are equivalent to mode 0 with a standard monitor.

Computers with SCSI discs will have additional settings that are determined by the SCSI card itself.

Delete power on

A '**Delete power on**' also sets the above defaults, but preserves only the Econet station number.

Warning: You should always make sure you have a copy of your configuration saved onto floppy disc, you can then easily restore the computer to your required configuration after the reset. For full details refer to the chapter entitled *Setting the configuration* on page 85.

Appendix D: Screen modes

RISC OS can display its desktop in different **modes.** Modes change the size of the desktop display and the number of colours the desktop can display. For example, mode 12 can display 16 colours simultaneously and mode 15 displays 256 colours. Mode 16 can display more information on the screen than mode 12, but the text size is smaller.

The table of modes on the following pages show:

- the mode number
- the text resolution in columns × rows
- the graphics resolution in pixels, which corresponds to the clarity of the mode's display
- the size in OS units, which corresponds to the area of desktop shown by the mode. (The greater the resolution, the larger the workspace area displayed).
- the number of colours available
- the memory used to display the screen
- the bandwidth used to display the screen. This corresponds to the load the mode places on the computer – the greater the bandwidth, the slower the computer operates.
- the monitor types that support that mode.

Other considerations

Modes 33 to 36 display pixels right to the edge of the screen, leaving no border. You may find that some pixels are lost at the edge. One use for these modes is in superimposing captions or other material on top of video signals, where it is important to be able to use the whole screen.

Modes 44 to 46 provide displays for the PC Emulator CGA modes at full height.

Modes have different refresh rates, normally the higher the refresh rate the less flicker is seen on the display:

Modes 0 to 21, 24, and 33 to 36 have a refresh rate of 50Hz.

Modes 25 to 28 and 37-46 have a refresh rate of 60Hz.

Mode 23 has a refresh rate of 64Hz.

Modes 29-31 have a refresh rate of 56Hz.

In 256 colour modes, there are some restrictions on the control of the colours. Only 64 base colours may be selected; 4 levels of tinting turn the base colours into 256 shades. Also, the selection from the colour palette of 4096 shades is only possible in groups of 16.

If an attempt is made to select a mode which is not appropriate to the current monitor type, a suitable mode for that monitor is used. For example, an attempt to select mode 23 on a type 0 monitor will result in mode 0 being used.

Monitor types and screen modes

Not all monitors can display all screen modes. The following table lists the screen modes each monitor can display:

Monitor number	**0**	**1**	**2**	**3,5**	**4**
Monitor type	**Std**	**Multi Freq**	**Hi-res mono**	**VGA**	**SVGA**
Mode					
0 – 15	✓	✓		✓†	✓†
16, 17, 24	✓	✓			
18 – 21		✓			
23			✓		
25 – 28		✓		✓	✓
29 – 31		✓			✓
33 – 36	✓	✓			
37 – 40		✓			
41 – 43		✓		✓	✓
44 – 46		✓		✓	✓

†VGA and Super VGA type monitors can display modes 0 to 15 with reduced height (letterbox mode). These modes are retained for compatibility.

Additionally, the monitor type, AUTO, is used by computers that can automatically identify the monitor type connected.

You must check your *Welcome Guide* to see which monitor types and screen modes are valid for your computer hardware.

List of screen modes

This is the list of screen modes supplied with RISC OS. Third party suppliers may produce software and hardware that produces different video modes; such modes are not listed here.

Mode	Text resolution	Pixel resolution	OS units resolution	Logical colours	Mem used	Band-width	Monitor types	Notes
0	80 × 32	640 × 256	1280 × 1024	2	20K	1M/s	0,1,3,4,5	③
1	40 × 32	320 × 256	1280 × 1024	4	20K	1M/s	0,1,3,4,5	③
2	20 × 32	160 × 256	1280 × 1024	16	40K	2M/s	0,1,3,4,5	③
3	80 × 25	Text only	Text only	2	40K	2M/s	0,1,3,4,5	③⑤⑦
4	40 × 32	320 × 256	1280 × 1024	2	20K	1M/s	0,1,3,4,5	③
5	20 × 32	160 × 256	1280 × 1024	4	20K	1M/s	0,1,3,4,5	③
6	40 × 25	Text only	Text only	2	20K	1M/s	0,1,3,4,5	③⑤⑦
7	40 × 25	Teletext	Teletext	16	80K	4M/s	0,1,3,4,5	③⑤
8	80 × 32	640 × 256	1280 × 1024	4	40K	2M/s	0,1,3,4,5	③
9	40 × 32	320 × 256	1280 × 1024	16	40K	2M/s	0,1,3,4,5	③
10	20 × 32	160 × 256	1280 × 1024	256	80K	4M/s	0,1,3,4,5	③
11	80 × 25	640 × 250	1280 × 1000	4	39.1K	2M/s	0,1,3,4,5	③
12	80 × 32	640 × 256	1280 × 1024	16	80K	4M/s	0,1,3,4,5	③
13	40 × 32	320 × 256	1280 × 1024	256	80K	4M/s	0,1,3,4,5	③
14	80 × 25	640 × 250	1280 × 1000	16	78.2K	3.9M/s	0,1,3,4,5	③
15	80 × 32	640 × 256	1280 × 1024	256	160K	8M/s	0,1,3,4,5	③
16	132 × 32	1056 × 256	2112 × 1024	16	132K	6.6M/s	0,1	⑥
17	132 × 25	1056 × 250	2112 × 1000	16	129K	6.5M/s	0,1	⑥
18	80 × 64	640 × 512	1280 × 1024	2	40K	2M/s	1	
19	80 × 64	640 × 512	1280 × 1024	4	80K	4M/s	1	
20	80 × 64	640 × 512	1280 × 1024	16	160K	8M/s	1	
21	80 × 64	640 × 512	1280 × 1024	256	320K	16M/s	1	
23	144 × 56	1152 × 896	2304 × 1792	2	126K	8.1M/s	2	
24	132 × 32	1056 × 256	2112 × 1024	256	264K	13.2M/s	0,1	⑥
25	80 × 60	640 × 480	1280 × 960	2	37.5K	2.3M/s	1,3,4,5	
26	80 × 60	640 × 480	1280 × 960	4	75K	4.5M/s	1,3,4,5	
27	80 × 60	640 × 480	1280 × 960	16	150K	9M/s	1,3,4,5	
28	80 × 60	640 × 480	1280 × 960	256	300K	18M/s	1,3,4,5	
29	100 × 75	800 × 600	1600 × 1200	2	58.6K	3.3M/s	1,4	①②
30	100 × 75	800 × 600	1600 × 1200	4	117.2K	6.6M/s	1,4	①②
31	100 × 75	800 × 600	1600 × 1200	16	234.4K	13.2M/s	1,4	①②
33	80 × 32	768 × 288	1536 × 1152	2	27K	1.4M/s	0,1	①
34	80 × 32	768 × 288	1536 × 1152	4	54K	2.7M/s	0,1	①
35	80 × 32	768 × 288	1536 × 1152	16	108K	5.4M/s	0,1	①
36	80 × 32	768 × 288	1536 × 1152	256	216K	10.8M/s	0,1	①
37	112 × 44	896 × 352	1792 × 1408	2	38.5K	2.3M/s	1	①
38	112 × 44	896 × 352	1792 × 1408	4	77K	4.6M/s	1	①
39	112 × 44	896 × 352	1792 × 1408	16	154K	9.2M/s	1	①
40	112 × 44	896 × 352	1792 × 1408	256	308K	18.5M/s	1	①
41	80 × 44	640 × 352	1280 × 1408	2	27.5K	1.7M/s	1,3,4,5	①③④

Mode	Text resolution	Pixel resolution	OS units resolution	Logical colours	Mem used	Band-width	Monitor types	Notes
42	80 × 44	640 × 352	1280 × 1408	4	55K	3.3M/s	1,3,4,5	①③④
43	80 × 44	640 × 352	1280 × 1408	16	110K	6.6M/s	1,3,4,5	①③④
44	80 × 25	640 × 200	1280 × 800	2	15.7K	0.9M/s	1,3,4,5	①③
45	80 × 25	640 × 200	1280 × 800	4	31.3K	1.9M/s	1,3,4,5	①③
46	80 × 25	640 × 200	1280 × 800	16	62.5K	3.8M/s	1,3,4,5	①③

Modes 2 to 7 and mode 10 are not used by the desktop.

Notes on the display modes

These notes refer to the note numbers in the far right column of the table.

1 These modes were not available in previous versions of RISC OS.

2 This mode is not available on early models of RISC OS computers (ie the Archimedes 300 and 400 series, and the BBC A3000), because they are unable to clock VIDC at the necessary rate.

3 This note applies **only** to VGA and Super-VGA-type monitors, for which these modes have a refresh rate of 70Hz.

These modes are all displayed on a screen having 352 raster lines. Where a mode has fewer than 352 vertical pixels, it is centred on the screen with blank rasters at the top and bottom. Because of their appearance these modes are known as letterbox modes.

The bandwidths shown in the table for these modes are lower than these monitor types consume, because no allowance has been made for the blank rasters.

Early models of RISC OS computers (ie the Archimedes 300 and 400 series, and the BBC A3000) scan these modes some 4.7% slow. Again this is because they are unable to clock VIDC at the necessary rate. Most VGA and Super-VGA-type monitors can still successfully lock onto this signal, but some may not. Furthermore, these models do not provide a **Sync Polarity** signal. This makes the effect of letterbox modes (see above) more severe.

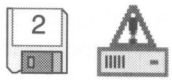
4 Early models of RISC OS computers (ie the Archimedes 300 and 400 series, and the BBC A3000) scan these modes some 4.7% slow with multi-frequency monitors. This is because they are unable to clock VIDC at the necessary rate.

5 These modes do not display graphics, for compatibility with BBC/Master series computers.

6 In these modes circles, arcs, sectors and segments do not look circular. This is because the aspect ratio of the pixels is not in a 1:2, 1:1 or 2:1 ratio.

7 These are gap modes, where the colour of the gaps is not necessarily the same as the text background.

Appendix E: Formatting a hard disc



HForm is used to format discs that use either the ST506 or IDE interface.

Hard discs fitted to Acorn computers and hard discs supplied as upgrades, are supplied ready-formatted and it is not necessary to reformat them. However, you may want to reformat your hard disc at a later date. For this purpose, the application HForm is used. This is supplied on the Applications disc.

Hard discs with a SCSI interface are formatted in a different way: for information on this, refer to the guide supplied with your SCSI Expansion Card.

Normally, during the formatting, HForm will prompt you to confirm the name of the disc in your computer. The application gets this information from the previous format type; you do not need to know the manufacturer of your hard disc.

There may, however, be some occasions when it is necessary to enter the specifications of the hard disc. For example:

- If you are adding a new hard disc.
- If the hard disc has not yet been formatted.
- If the information on the hard disc has been corrupted or is incorrect.

If you need to alter the specifications of the hard disc, you should consult the manual accompanying your hard disc for its precise specifications.

How to format a hard disc

WARNING: Reformatting your hard disc will permanently remove all data stored on the disc. It is essential that data you wish to keep is copied to a floppy disc (or otherwise backed up) before the disc is reformatted.

In the following instructions it is assumed that you have to reformat your hard disc because of repeated hard disc errors. In order to carry out the reformatting successfully you should have a record of the disc errors which have occurred and their addresses.

HForm does not use the Escape key. At the end of the Format options you will be asked if you want to proceed with the formatting; answer NO and Hform will quit without formatting your disc.

For the purpose of this example it is assumed that your computer is fitted with a 53Mb Rodime hard disc. However, you do not need to know the manufacturer of your hard disc or its specifications, since you can just accept all the defaults offered.

There are two stages to formatting the hard disc:

- Entering the specifications of the hard disc; known as the hard disc shape.
- Entering the list of defects on the hard disc.

Entering the hard disc shape

1 Double-click on the HForm application.

2 HForm will then prompt you as follows:

```
HARD DISC FORMATTER
Format which drive (4 - 7)? 4 (press Return)
```

The internally fitted hard disc drive is numbered 4, while subsequent hard disc drives (if fitted) are numbered 5 to 7. If you want to accept the default drive number 4, press Return, otherwise type the desired number and press Return.

3 Once you have told HForm which hard disc you want to format, HForm checks the type of hard disc and displays the following or a similar message:

```
Drive 4 is an ST506 drive
This disc was last formatted using the standard shape
for a 53Mb Rodime RO3065
Do you wish to use this shape (Y/N) ?
```

IDE drives display drive-type information on the screen.

To continue with the formatting, type Y and press Return.

```
Old or New map format (O/N) ?
```

Most hard discs now use the new format; type N to continue with the formatting. IDE drives do not give you this option.

4 HForm now gives you the following choices:

```
A: no more changes
B: add defect by cylinder, head, byte/sector
C: add defect by disc address
D: remove defect
A, B, C or D?
```

If you are simply formatting a disc, type A for the formatting to contine.

If you wish to add a defect to the disc's defect list continue with the next section.

Recording a list of hard disc defects

Skip this section if you don't want to add any defects to the hard disc defect list. A defect is a fault that has been detected in part of the disc. The following process marks the defective part of the disc, so that the defective part is no longer used.

After you press Return at the last option, HFORM will list the current defects (if any) on the hard disc and invite you to change the list by adding any new defects that you may have discovered. You may wish to add a new defect because ADFS has previously returned an error message, such as:

```
Disc error 10 at :4/00831E00
```

1 To record a single defect on the defect list, select option C. If you have more than one defect to record and your disc is in D format, see the following section entitled *Recording more than one error on a* D *(old map) format disc*. If your disc is in E format, multiple errors can be added in any order.

2 Type in the defect address exactly as it appeared in the disc error message, but omit the colon.

3 When you have entered all the defects you wish to, select option A.

Continuing the format

1 You will now be asked if you want to:

```
Format or just initialise the drive (F/I) ?
```

To continue with the format type F.

If you are reformatting an existing hard disc, just initialising the disc will be sufficient. You only need to format the disc if it has never been formatted before, or if it was previously formatted using the wrong parameters.

2 At this stage you will be asked if you want to carry out a soak test. Soak testing repeatedly formats and checks the disc. It can be used to check that the state of the defects on the disc is stable.

```
Soak test the hard disc for defects (Long/Short/None) ?
```

If you want to carry out a soak test, type in either L or S and press Return.

L is the long test, the disc is being continuously tested until you press the Space bar.

S is the short test, which is just one scan of the disc, lasting a few minutes.

If you don't want to soak test, type in N and press Return.

3 This is followed by a further prompt:

```
Are you SURE you want to do this to drive <drive number>
(Y/N) ?
```

Type `Y` and press Return to start the format or initialisation.

4 If you specified the long soak test, the test continues until you press the Space bar. It is recommended that you carry out the soak test for at least 24 hours.

If you do not perform a soak test, and if the verification process detects any additional defects, HFORM will then repeat the formatting and verification process in order to include the new defects. It will display the messages `Formatting` and `Verifying` as it does so.

5 The final prompt is

```
Large file allocation unit? 512
```

If you expect to use the disc for a very large number (several thousand) of small files, type 256 in response to this prompt. Otherwise, press Return to accept the default.

The formatting process is now complete.

Recording more than one error on a D (old map) format disc

If you have more than one disc error to add to the defect list, you must add them in descending order of hexadecimal address, giving the hexadecimal values of the addresses as shown in the disc error message. When you have listed the disc errors, follow steps 1 to 4, as described in the previous section.

Formatting a previously unformatted hard disc

Formatting a brand new, previously unformatted hard disc is different from reformatting a hard disc which had already been formatted. This is because you need to record the defects on the hard disc by (physical) cylinder, head and section address rather than by logical address (the hexadecimal address given in disc error messages). There are normally only two circumstances which may require this. These are when you need to

- establish an initial defect list on a brand new, previously unformatted disc
- re-establish the defect list in the unlikely event that it has become corrupted, for example due to a power failure during a previous format operation.

The information on the cylinder, head and sector address is kept on a written defect list which the manufacturer attaches to the body of the hard disc drive. To gain access to the written defect list you have to remove the top cover of the computer. Instructions on how to remove it and basic safety precautions are given in the documentation which accompanies your computer.

1 If there are no initial defects, select option A. Otherwise, to record the initial defect list, select option B.

   If you wish to add any defects by logical addresses (option C) you must do this before entering the defects by (physical) cylinder, head and sector address, ie by option B. This applies only to old map discs, ie those prepared in formats other than E.

2 Type in the defect addresses exactly as they appear on the list.

3 When you have entered the defects, select option A and follow the procedure described in the previous sections.

Appendix F: RISC OS file types

File types are three-digit hexadecimal numbers. They are divided into three ranges:

E00 to FFF	reserved for use by Acorn
800 to DFF	may be allocated to software houses (A00 to AFF are used for Acornsoft files, 800 to 80C for BBC uniform files)
000 to 7FF	free for users

For each type, there may be a default action on loading and running the file. These actions may change, depending on whether the desktop is in use, and which applications have been seen. The system variables Alias$@LoadType_XXX and Alias$@RunType_XXX give the actions (XXX = file type).

Some types have a textual equivalent set at start-up, which may be used in most commands (but not in the above system variables) instead of the hexadecimal code. These are indicated in the table below by a dagger '†'. For example, file type &FFF is set at start-up to have the textual equivalent **Text**. Other textual equivalents may be set as an application starts – for example, Acorn Desktop Publisher sets up file type &AF9 to be **DtpDoc**, and file type &AFA to be **DtpStyle**. These textual equivalents are set using the system variables File$Type_XXX, where XXX is the file type.

The following types are currently used or reserved by Acorn. Not all file types used by software houses are shown. This list may be extended from time to time:

Acorn file types

Type	Description	Textual equivalent	
FFF	Plain ASCII text	Text	†
FFE	Command (Exec) file	Command	†
FFD	Data	Data	†
FFC	Position independent code	Utility	†
FFB	Tokenised BASIC program	BASIC	†
FFA	Relocatable module	Module	†
FF9	Sprite or saved screen	Sprite	†
FF8	Absolute application loaded at &8000	Absolute	†
FF7	BBC font file (sequence of VDU operations)	BBC font	†
FF6	Fancy font (4 bpp bitmap only)	Font	†

Type	Description	Textual equivalent	
FF5	PostScript	PoScript	†
FF4	Dot Matrix data file	DM Data	
FF3	LaserJet data file	LaserJet	
FF2	Configuration (CMOS RAM)	Config	
FF1	Raw unprocessed data (eg terminal streams)	RawData	
FF0	Tagged Image File Format	TIFF	
FEF	Diary data	Diary	
FEE	NotePad data	NotePad	
FED	Palette data	Palette	†
FEC	Template file	Template	†
FEB	Obey	Obey	†
FEA	Desktop	Desktop	
FE9	ViewWord	ViewWord	
FE8	ViewPS	ViewPS	
FE7	ViewSheet	ViewSht	
FE6	UNIX executable	UNIX Ex	
FE5	EPROM image	EPROM	
FE4	DOS file	DOS	
FE3	Atari file	Atari	
FE2	Commodore Amiga file	Amiga	
FE1	Make data	Make	
FE0	Desktop accessory	Accessry	
FDF	TCP/IP suite: VT220 script	VTScript	
FDE	TCP/IP suite: VT220 setup	VTSetup	
FDD	Master utilities	MasterUtl	
FDC	TCP/IP suite: unresolvable UNIX soft link	SoftLink	
FDB	Text using CR and LF for line ends	TextCRLF	
FDA	PC Emulator: MS-DOS batch file	MSDOSbat	
FD9	PC Emulator: MS-DOS executable file	MSDOSexe	
FD8	PC Emulator: MS-DOS command file	MSDOScom	
FD7	Obey file in a task window	TaskObey	
FD6	Exec file in a task window	TaskExec	
FD5	MS-DOS Pict	Pict	
FD4	International MIDI Assoc. MIDIfiles standard	MIDI	
FD3	Acorn DDE: debuggable image	DebImage	
FD2	SrcFiler: diff file	SrcDiff	
FD1	BASIC stored as text	BASICTxt	
FD0	PC Emulator: configuration	PCEmConf	
FCF	Font cache	FontCache	
FCE	FileCore floppy disc image	FileCoreFloppyDisc	
FCD	FileCore hard disc image	FileCoreHardDisc	
FCC	Device object within DeviceFS	Device	

Type	Description	Textual equivalent
FCA	Single compressed file	Squash
FC9	Sun raster file	SunRastr
FC8	DOS MultiFS disc image	DOSDisc
F0E	BBC Econet utilities	EconetUtl
F09	BBC Winchester utilities	WiniUtil

Industry standard file types

Type	Description	Textual equivalent
DFE	Comma separated values	CSV
DEA	Data exchange format (AutoCAD etc)	DXF
DB4	SuperCalc III file	SuperCalc
DB3	DBase III file	DBaseIII
DB2	DBase II	DBaseII
DB1	DBase index file	DBaseIndex
DB0	Lotus 123 file	Lotus123
CE5	TeX file	TeX
CAF	IGES file	IGIS
CAE	Hewlett-Packard graphics language	HPGLPlot
C85	JPEG (Joint Photographic Experts Group) file	JPEG

BBC ROM file type

Type	Description	Textual equivalent
BBC	BBC ROM file (ROMFS)	BBC ROM †

Acornsoft file types

Type	Description	Textual equivalent
AFF	Draw file	DrawFile
AFE	Mouse event record	Mouse
AFD	GCAL source file	Gcal
AFC	GCODE intermediate file	GcalOut
AFB	PhonePad file	PhonePad
AFA	DTP style file	DtpStyle
AF9	DTP documents	DtpDoc
AF8	First Word Plus file	1stWord+
AF7	Help file	HelpInfo
AF6	ASim trace file	SimTrace
AF5	Query form	Query
AF4	EMail cabinet	EMail
AF3	Disc image	Duplicate

Type	Description	Textual equivalent
AF2	Nova file	Nova
AF1	Maestro file	Music
AF0	ArcWriter file	ARCWriter
AE9	Alarm file	Alarms
ADB	Outline font	New Font

BBC Uniform file types

Type	Description	Textual equivalent
80C	Stationery pad	StationaryPad
80B	Videotex file	VideoTex
80A	Database form file	DataBaseForm
809	Database file	DataBase
808	UniForm PostScript file	UniformPostScript
807	Graphs and charts file	GraphsAndCharts
806	Graphics file	Graphics
805	Drawing file	Drawing
804	Picture file	Picture
803	Spreadsheet file	Spreadsheet
802	UniForm Text only file	UniformText
801	Wordprocessor file	Wordprocessor
800	General BBC UniForm file	Uniform

Appendix G: BBC BASIC

BBC BASIC is still one of the most popular and widely-used programming languages. It consists of special keywords from which the programmer can create sequences of instructions, or programs, to be carried out by the computer. Such programs might perform calculations, create graphics on the screen, manipulate data, or carry out virtually any action involving the computer and the devices connected to it. Several examples of programs written in BBC BASIC are provided on the Applications suite.

The BASIC language operates within an environment provided by the computer's operating system. The operating system is responsible for controlling the devices available to the computer, such as the keyboard, the screen, and the filing system. For example, it is the operating system which reads each key you press and displays the appropriate character on the screen. Operating system commands can be entered directly from within BASIC by prefixing them with an asterisk (*).

If you want to find out more about the BBC BASIC programming language, you need the BBC BASIC *Reference Manual* available from your Acorn supplier.

BBC BASIC V and VI

There are two variants of BBC BASIC supplied with RISC OS 3: BASIC V and BASIC VI.

BASIC V is in the ROM and is almost identical to the BASIC V supplied with RISC OS 2.00. A small number of faults have been corrected.

BASIC VI is essentially the same as BASIC V, but it uses 8 bytes (or 64 bits) to store floating point numbers. BASIC V only uses 5 bytes, so it is slightly less accurate. The 8 byte representation used follows the IEEE standard. Unlike BASIC V, BASIC VI will make use of a floating point expansion card if it is fitted.

Entering BASIC

Basic V

To start BASIC V, display the Task manager menu (click Menu over the Acorn icon at the bottom righthand corner of the desktop). Choose the **Task window** option and then type the following:

```
BASIC
```

Press Return, and the BASIC V version and memory option will be displayed on the screen.

BASIC can also be started from the New Task option on the Task Manager or from the command line (press F12).

Basic VI

BBC BASIC VI is different to BBC BASIC V in that it is stored on disc, not in the computer's ROM. BASIC VI is also known as BASIC64.

BASIC VI is used by some applications (for example SciCalc) so it may get loaded into memory without you having to take any special action.

To start BASIC VI, display the Task manager menu (click Menu over the Acorn icon at the bottom righthand corner of the desktop). Choose the **Task window** option and then type the following:

```
BASIC64
```

Press Return, and the BASIC VI version and memory option will be displayed on the screen. If BASIC VI is not loaded you will get the error message:

```
File 'BASIC64' not found
```

If you get this error message then you should type:

```
SYSTEM:MODULES.BASIC64
```

Press Return, and the BASIC VI version and memory option will be displayed on the screen.

If you now get the error message

```
File 'system:modules.basic64' not found
```

then either you have not seen a !System directory, in which case you should open a directory display on the directory containing your !System, or your !System does not contain a copy of BASIC64. If you don't have BASIC64, you should update it from the !System on the applications discs.

BASIC can also be started from the New task option on the Task manager menu or from the command line (press F12).

BASIC files saved from both BASIC V and BASIC VI are the same and can be run using either BASIC.

Leaving BASIC

To leave BASIC, type `QUIT` (which must be in uppercase).

New features in BASIC VI

The new CRUNCH command strips various spaces from a program. Its argument is a 5-bit binary word. Each bit in the word has a different meaning (for instance bit 0 controls the stripping of spaces before statements; bit 2 controls the stripping out of REM statements).

The new TEXTLOAD command can load a file that is either a BASIC program, or a BASIC program that was saved as a text file. In the latter case, TEXTLOAD automatically renumbers the program. TEXTSAVE stores a BASIC program as a text file, and strips out the line numbers.

Writing and editing BASIC files

Edit will automatically convert BASIC files to and from BASIC tokenised format. Now all editing of BASIC files can be done using Edit. Edit is fully described in the *Applications Guide*.

Command line syntax for BASIC

The following pages describe in full the command line interface for BASIC V and BASIC VI.

*BASIC

The command to enter the BASIC V interpreter.

Syntax

```
*BASIC [options]
```

Purpose

To enter BASIC V.

The options control how the interpreter will behave when it starts, and when any program that it executes terminates. If no option is given, BASIC simply starts with a message of the form:

```
ARM BBC BASIC V version 1.05 (C) Acorn 1989
Starting with 643324 bytes free
```

The number of bytes free in the above message will depend on the amount of memory in your Next slot. The first line is also used for the default REPORT message, before any errors occur.

One of three options may follow the *BASIC command to cause a program to be loaded, and, optionally, executed automatically. Alternatively, you can use a program that is already loaded into memory by passing its address to the interpreter. Each of these possibilities is described in turn below.

In all cases where a program is specified, this may be a tokenised BASIC program, as created by a SAVE command, or a textual program, which will be tokenised (and possibly renumbered) automatically.

```
*BASIC -help
```

This command causes BASIC to print some help information describing the options documented here. Then BASIC starts as usual.

```
*BASIC [-chain] filename
```

If you give a *filename* after the *BASIC command, optionally preceded by the keyword `-chain`, then the named file is loaded and executed. When the program stops, BASIC enters immediate mode, as usual.

```
*BASIC -quit filename
```

This behaves in a similar way to the previous option. However, when the program terminates, BASIC quits automatically, returning to the environment from which the interpreter was originally called. If you have a variable `BASIC$Crunch`

defined, it also performs a CRUNCH %1111 on the program. This is the default action used by BASIC programs that are executed as * commands. In addition, the function QUIT returns TRUE if BASIC is called in this fashion.

```
*BASIC -load filename
```

This option causes the file to be loaded automatically, but not executed. BASIC remains in immediate mode, from where the program can be edited or executed as required.

```
*BASIC @start,end
```

This acts in a similar way to the -load form of the command. However, the program that is 'loaded' automatically is not in a file, but already in memory. Following the @ are two addresses. These give, in hexadecimal, the address of the start of the in-core program, and the address of the byte after the last one. The program is copied to PAGE and tokenised if necessary. This form of the command is used by Twin (the editor) when returning to BASIC.

Note that the in-core address description is fixed format. It should be in the form:

```
@xxxxxxxx,xxxxxxxx
```

where *x* means a hexadecimal digit. Leading zeros must be supplied. The command line terminator character must come immediately after the last digit. No spaces are allowed.

```
*BASIC -chain @start,end
```

This behaves like the previous option, but the program is executed as well. When the program terminates, BASIC enters immediate mode.

```
*BASIC -quit @start,end
```

This option behaves as the previous one, but when the BASIC program terminates, BASIC automatically quits. The QUIT flag will return TRUE during the execution of the program.

Examples

```
*BASIC
*BASIC -quit shellProg
*BASIC @000ADF0C,000AE345
*BASIC -chain fred
```

*BASIC64

The command to enter the BASIC VI interpreter.

Syntax

```
*BASIC64 [options]
```

Purpose

This has exactly the same purpose as the *BASIC command, and takes the same options, the only difference being that it enters the BASIC VI interpreter instead of the BASIC V interpreter. Additionally CRUNCH is used automatically by BASIC64.

If no option is given, BASIC VI simply starts with a message of the form:

```
ARM BBC BASIC VI version 1.05 (C) Acorn 1989

Starting with 581628 bytes free.
```

The number of bytes free in the above message will depend on the amount of free space in your Next slot.

Examples

```
*BASIC64
*BASIC64 -quit shellProg
*BASIC64 @000ADF0C,000AE345
*BASIC64 -chain fred
```

Appendix H: Fonts and the Font manager

RISC OS computers contain a range of fonts stored permanently in ROM. These fonts are used not only by the screen but also by all printers except for some PostScript printers such as the Apple LaserWriter which have their own built-in fonts. The fonts are controlled by a part of the operating system called the Font manager.

One of these fonts is a simple font used, for example, in Title bars and for filenames in directory displays: this is the System font. It is available in only one size. Applications such as Edit also use the System font unless you decide otherwise.

The other fonts can be used in any size and have italic and bold variants; some of them use proportional spacing, so that a narrow letter such as 'I' takes up less horizontal space than a wide letter, such as 'M'. Most computers store such fonts in the form of bitmaps (like Paint files) specifying which pixels the computer should paint in order to create the shape of the character. Storing fonts this way takes up a lot of memory, and when larger or smaller sizes are wanted, scaling is often unsatisfactory, producing irregular shapes.

Instead of bitmaps, the Acorn Font manager uses 'outline' fonts (like Draw files), where only the outline of each character is stored. When you request a font, the computer loads the outline font, scales it to the size you want, and fills in the outline. This produces much better effects when fonts are scaled.

As supplied, the font management system is set up to provide a reasonable blend of screen quality and performance for the majority of users (typically those with 1 or 2Mb RAM). However, it is possible to change the Font manager's settings to produce a system with different characteristics, as described below.

Anti-aliasing and hinting

The Font manager uses two techniques to improve the quality of fonts. The first of these is called 'anti-aliasing', and applies only to screen displays. If the outline of a character passes partially through a pixel, a non-anti-aliasing font can only paint the whole pixel or none of it. The result is a jagged edge to the character.

Anti-aliasing relies on an optical trick: the jagged edges are smoothed out by the addition of extra pixels in intermediate colours. You can see how this is done by first typing some text in an Edit window (using a fairly small size – 12 or 14 point, say), or loading an Edit file. Press Menu, move the pointer to the **Display** submenu, and from there to the **Fonts** submenu. This will show a list of fonts available. Click on Trinity.Medium to display the text in an anti-aliased font.

To examine the display more closely, use the Magnifier application, described in the *Applications Guide*.

The Font manager uses a second technique to improve the appearance of fonts, one that applies both to the screen and to printers. This is called 'hinting'. The outline of the character being displayed (or printed) is subtly altered in ways that depend on the resolution of the image being produced. This is particularly effective when fonts are scaled, and when half-tones are not available, as on most printers.

The fonts supplied with your computer are held in Resources:$.Fonts. You can see which fonts are available at any time, with the Command Line command:

```
*fontcat
```

Font cacheing

From each outline font that is requested, the computer calculates the bitmap it needs to display the font at the desired size. It keeps as many of these bitmap fonts as it can in an area of memory called the font cache. If the font cache is not large enough to hold the bitmaps of all the fonts that are in use at a given time, any extra fonts are loaded from the filing system as necessary.

The computer will attempt to retain in memory the fonts which are in greatest demand, but to do this requires some sophisticated guesswork. Since this is not always totally successful (the computer cannot read your mind!) there will sometimes be a delay when text is being drawn on the screen, as the font is loaded from the filing system.

Matching font performance to your needs

There is inevitably a trade-off between speed and font appearance. Since users' priorities and aesthetic judgements vary, RISC OS provides two ways of tailoring font performance to your needs and preferences. You can

- change the size of the font cache
- change the way anti-aliasing is done (or switch it off altogether).

Changing the minimum size of the font cache

If you are using a lot of different fonts, you can increase the minimum size of the cache, so that the text is drawn more quickly. This is done by setting the **Font cache** in the **Memory allocation** screen of the **Configure** application (to set it permanently) or by setting the **Font cache** size option in the Task Manager's **Task display** window (to set it for the current session only).

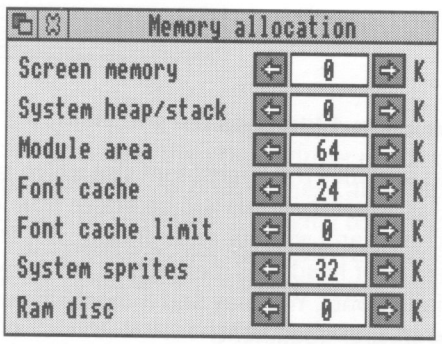
How to set the default font cache using Configure is explained on page 94.

The best size for the font cache depends on several factors: how much memory your computer has, whether you have a hard disc or not, and whether you are currently using many different fonts in an application. For example, a large application needs a font cache of about 64KB even in a 1MB computer, and can benefit from 128KB or 256KB in a 2 or 4MB machine. The default value is 32KB.

Allowing the font cache to grow

If the size of the font cache is too small, the Font manager will attempt to increase its size up to the maximum specified by the maximum font cache. If this happens it will then shrink back to the normal current size as soon as any fonts can be discarded. The Font manager decides to do this rather than throw away cached blocks of currently 'open' fonts.

The value for the maximum font cache size can be set using the **Font cache limit** option on the **Memory allocation** screen of **Configure**.

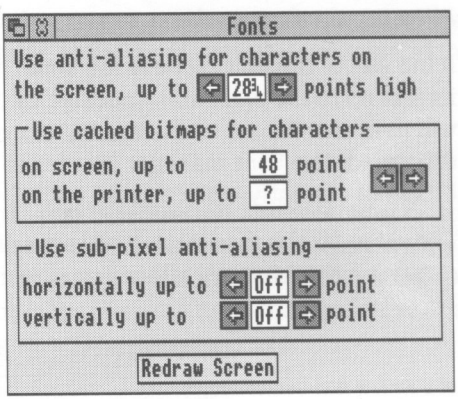


Controlling anti-aliasing and hinting

The effects of anti-aliasing can be fine tuned using the **Fonts** screen in the **Configure** application. Each parameter is specified in points and can be set for both screen and printer. How to set the Font configuration using Configure is explained on page 98.

Use anti-aliasing

This places an upper limit on the size of anti-aliased fonts; fonts in larger sizes are printed without anti-aliasing. Larger fonts benefit less from anti-aliasing, and since a computed anti-aliased bitmap font occupies a lot more memory than a non-anti-aliased bitmap, for most purposes it is not worth displaying large fonts with anti-aliasing. This parameter is relevant only to the screen display. Its default screen value is 24 point in mode 12.


Fonts
Use anti-aliasing for characters on
the screen, up to 28¾ points high
Use cached bitmaps for characters
on screen, up to 48 point
on the printer, up to ? point
Use sub-pixel anti-aliasing
horizontally up to Off point
vertically up to Off point
Redraw Screen

Use cached bitmaps

This specifies the largest font size which is to be kept in the font cache as a bitmap. Fonts larger than this will be drawn from outlines directly to the screen without cacheing and without anti-aliasing. If it is set high, and you are using a few large fonts – for headlines, perhaps – they may take up all the font cache, flushing out smaller fonts. You may find it most efficient to set this value to the size of the body text in your document.

This parameter is particularly relevant for the printer, and especially if you are printing documents containing a lot of text. Its default values depend on the selected mode and printer driver, and on which printer and resolution has been selected. For example, in mode 12, with an Epson FX-compatible printer printing at 240 x 216 dots per inch, the default values are 48 and 10 for the screen and printer respectively.

If you have one of the larger and more powerful RISC OS computers, or are printing at a high resolution, you may wish to increase the values of this parameter.

Use subpixel anti-aliasing

This controls a refinement of anti-aliasing in which four separate versions of each character are retained. This can have a beneficial effect on the quality of characters as small sizes. However it is heavy on computing power and may result in unacceptably slow screen updates. Therefore this should not normally be changed from its default value of OFF.

Troubleshooting

If every repaint on the screen causes intensive disc and hourglass activity, then the font cache may be too small to hold the range of fonts you are trying to use. In these circumstances, try the following:

1. Increase the size of the font cache using the Task window. The addition of even small amounts of memory can often improve things dramatically.
2. Reduce the maximum size for anti-aliasing (or switch it off altogether). This will enable the font cache to be used more economically with a large number of fonts.
3. Reduce the maximum height of cached bitmaps value (or set it to zero). This should reduce disc activity, but the action of painting on the screen will become much slower.

Printing

When printing, there are conflicting requirements for memory. The Font manager needs memory to cache fonts, and the printer driver needs memory to build up a page image to send to the printer. As both of these affect printing speed, you will have to experiment to find the optimum. Changing to screen mode 0 while printing, for instance, can speed it up considerably. As a general rule these remarks do not apply to PostScript printing, which operates in a different way.

Note also that if you have a non-PostScript printer, the parameter maximum height of cached bitmaps affects whether fonts are cached when printing. If the value in the Printer box is smaller than your typical body text size, there may be a very long pause at the start of each printed page, as all the characters on the page are rendered from the outline form.

Appendix I: The fancy text file format

Fancy text format understands text printing options such as Paper feed, Title, Number lines, Print quality and Control codes. Plain text format ignores these settings.

The fancy text file format is mainly the same as the 1st Word Plus file format, and so most of the highlighting (in 1st Word Plus files) is printed correctly. This means you don't have to load 1st Word Plus to print out your 1st Word Plus files (although you can't print sprites).

The Fancy text file format

This section specifies the fancy text file format; it is of interest to advanced users only. The format consists of plain text with the following added special sequences. In a text file, the character sequence is a character that stands for the ASCII value given in brackets in the table below:

Character sequence	Meaning	Action
<8>	Backspace character	Backspace if possible
<9>	Tab character	Tabulate to next 8th column
<10>	Line Feed character	Possible end-of-line (depends on options)
<11><x>	Conditional page break	Page break if less than x-16 lines left on page, else a new line
<12>	Unconditional page break	Go to a new page (i.e. a page break)
<13>	Return character	Possible end-of-line (depends on options)
<24><x><y><n>	Footnote reference	Reference to footnote <n>, so print <n>. (x & y are ignored but must be present)
<25>	Soft hyphen	Always print a hyphen
<27>	Escape character	Start escape sequence

Character sequence	Meaning	Action
<28>,<29>,<30>	Soft space	Discard if precedes a <10>, <11>, <12> or <13>, else print a space
<31>	Format character	Start format sequence (reserved for Acorn use)
<127>	Delete character	Ignored

In a text file, the escape sequence is a character that stands for the ASCII value given in brackets in the table below followed by a binary number.

Escape sequence	Meaning
<27><%11000000>	Starts literal escape sequence. This is equivalent to <27><192>. A literal escape sequence is a sequence of characters which are sent directly to the printer – and hence are printer-specific. The sequence is ended by a <27><0>. A "||" pair sends a "|" character, a "|?" pair sends a <127>, and any other "|<x>" sequence sends <x AND 31>. Thus to send an escape character use "|[".
<27><%10fedcba>	If 'a' is 1 then bold style (on = 1, off = 0) If 'b' is 1 then light style (on = 1, off = 0) If 'c' is 1 then italic style (on = 1, off = 0) If 'd' is 1 then underline (on = 1, off = 0) If 'e' is 1 then superscript (on = 1, off = 0) If 'f' is 1 then subscript (on = 1, off = 0) This is equivalent to the range of escape sequences <27><128> to <27><191>.
<27><other>	Ignored

The file format is almost a subset of the 1st Word Plus file format, the basic omissions being headers and footers, and an incomplete implementation of footnotes.

Appendix J: Error messages

There are many possible error messages; this appendix lists some of the more common ones you might see. It also tells you what the more likely causes of an error message are, and what you can do about it. You may occasionally see other error messages which will usually be self-explanatory. If you have serious problems, especially recurring ones, consult your supplier.

User Errors

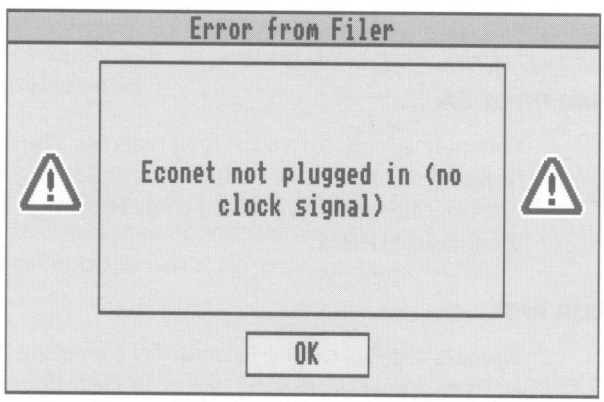
These are errors that are mainly caused by you, the user, performing an inappropriate action. Most of these errors are listed in this chapter, together with a way of curing the error.

Internal errors

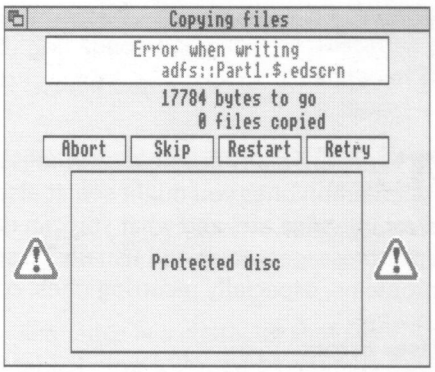
These errors are not caused by the user, but are problems with the system or the Application you are using. The most common internal errors are listed here, together with an explanation as to their cause. Most errors of this type start with the word Internal.

The error message window

This is what a typical error message window looks like:



There is another type of error window you may see, this is generated by the desktop Filer and looks like this:



This type of error box is generated when a file operation is not completed. You should clear the fault and then click on the appropriate filer option. For an explanation of the filer options, turn to the section entitled *The Filer* on page 8.

Error messages

Bad wimp mode

You can't change to this screen mode.

Can't delete current directory

You cannot delete this directory. To cure this click on **OK**, then enter the Command Line and type *Up. This changes the current directory to the parent of the directory you were trying to delete. Return to the desktop and click on **Retry**.

Disc error 3A ...

This may appear for a variety of reasons. The most common explanation is that the floppy disc has a fault on it. You should copy the data onto another disc and then reformat the disc. If you want to try to salvage the disc without formatting it use the command *Defect.

Data lost

There is a delay on the Econet. Try repeating the command that caused it. If the error happens repeatedly, ask your system manager for help.

Data lost can also come from the floppy disc drive if there is an error during writing. Check for a protected disc. Use *Verify to check there are no defects on the disc.

Disc modified or has been seen before...

You either have two floppy discs with the same name, or a single floppy disc has been 'seen' by this machine, taken out and modified on another machine, and then returned to this one. Click on **OK** to tell the computer to regard the current disc as the right one.

Econet error

There is a delay on the Econet. Try repeating the command that caused it. If the error happens repeatedly, ask your system manager for help.

Econet not listening

There is a delay on the Econet. Try repeating the command that caused it. If the error happens repeatedly, ask your system manager for help.

Econet not plugged in (no clock signal)

The Econet is not plugged in. Check the cable running from the socket at the back of the computer to the network socket.

Econet station name not found

The network is too busy to find the named file server. Try repeating your command. Alternatively, the file server itself may be out of action. Check with your system manager.

File locked

You tried to do something forbidden to a locked file, such as delete it. You need to unlock it first if you really want to perform this action. The Access option on the Filer/File menu unlocks files.

File not found

The file you have requested has not been found. Make sure that the file exists and then try again. If this message appears when you are using the Econet network, refer first to section entitled *Econet file servers* on page 42.

File open

An operation was interrupted by an error, a reset, or similar; on the net, this error can also be caused by other people accessing the same file. Go to the command line by pressing F12 and type in *Close or *Net:close to close the open file. Press F12 to return to the desktop and then repeat the command that caused the error. If the error persists on the net, try logging off and logging on again.

FileCore in use

One application tried to access a file at the same time as another. Repeat your command, if possible waiting for the other application to finish. If this error is given repeatedly you will have to reset the computer.

Font cache full

The space reserved for fonts has been used up. Use the Task manager to reserve more space for the font cache. Alternatively use the Configure application to set the font cache automatically.

Free space map full

The data on your disc has become fragmented, and you should compact the disc. This error is only encountered if you are using the old type D or L formats. Discs are compacted using the *Compact command. See the Command Line section of this guide for the *Compact command.

Internal instruction error

This error may be caused by a bug in the application you are using.

Internal data error

This error may be caused by a bug in the application you are using.

Internal address error

This error may be caused by a bug in the application you are using.

Line jammed

The Econet is seriously overloaded: inform your network manager.

Message block is too big/ not a multiple of 4

This error is sometimes erroneously produced when filenames are too long.

No free printer server of this type

This can sometimes be caused by network broadcasts going wrong. Repeat the command you used.

No reply from ... (Econet station)

There is a delay on the Econet or the Server is off net; try repeating the command that caused it. If the error happens repeatedly, ask your system manager for help.

No run action specified for this file type

Before a file belonging to an application can be loaded, its application must have been 'seen' (shown on a directory display) at some time in your session. This error message appears when this has not happened. To prevent this error occurring, keep your applications in the root directory of your disc(s), or include statements in your !Boot file that will cause !Boot files in the relevant subdirectories to be run when you power on.

Not enough memory for FileSwitch workspace

The area of memory reserved for relocatable modules (the RMA) has all been claimed. Use the Task manager application to reserve more space for the module area. Note that the screen/RMA can claim memory automatically from **Free** but not from **Next** slots.

Not enough memory for system variable

The area of memory reserved for the system heap has all been used. Use the Task manager to reserve more space for the System heap/stack. Note that the heap/stack can claim memory automatically from **Free** but not from **Next** slots.

Not enough memory in module area

The area of memory reserved for relocatable modules (the RMA) has all been claimed. Use the Task manager to reserve more space for the module area. Note that the screen/RMA can claim memory automatically from **Free** but not from **Next** slots.

Not enough memory on system heap

The area of memory reserved for the system heap has all been used. Use the Task manager application to reserve more space for the System heap/stack.

Not enough memory to start application

You need to free more memory before the application will run. You can do this by:

- quitting other applications and modules.
- using the Task manager application to reduce the amount of memory used by other things, such as the font cache and system sprite pool;
- changing to a screen mode with a lower resolution and/or fewer colours;
- discarding the RAM disc (if you have one). See the appendix entitled *Getting the best out of* 1MB *computers* on page 203.

Not logged on

You have asked the computer to load a file or application from the network, but you are not logged on. You will see this message if you have just copied an application from the network, logged off, and then tried to load a file straight into the application without loading the application first. The computer tries to load the application from where it first saw it – the network. To avoid this problem, you should first load the application from your disc copy of it, and then load the file.

Printer busy

The printer is not responding. Check that it is plugged in. If you are using the network printer server, try again later when it may be free; if this error occurs repeatedly, consult your system manager.

Printer in use

You are trying to print from more than one application at once. Wait for the first application to finish before printing from the other one.

Printer jammed

The printer is not responding. Check that it is plugged in. If you are using the network printer server, try again later when it may be free; if this error occurs repeatedly, consult your system manager.

Printer timeout

The printer is not responding. Check that it is plugged in. If you are using the network printer server, try again later when it may be free; if this error occurs repeatedly, consult your system manager.

System resources cannot be found

The !System application (provided on disc with your computer) cannot be found. Display the directory containing !System and repeat your command. Some applications need to 'see' !System, even though they do not use it.

Template file not found

An application directory is missing a template file. Check that it has not been accidentally renamed or moved. If necessary, replace the application from your master copy.

End-user licence conditions for the RISC Operating System

1. Definitions

The following expressions have the meanings given here:

'Acorn' means Acorn Computers Limited, being either owner of all intellectual property rights in the Software, or having the right to grant licences of the Software.

'Developer' means any third party software developer who retains copyright in the Software.

'Software' means the operating system programs, applications, utilities and modules supplied in and with this product.

'Documentation' means the printed user documentation supplied for use with the Software, whether supplied separately or with this pack.

2. Licence

Acorn grants you a personal non-transferable non-exclusive licence (or sub-licence), as follows:

1 You may copy the Software for back-up purposes, to support its use on one stand-alone Acorn computer system.

2 You must ensure that the copyright notices contained in the Software are reproduced and included in any copy of the Software.

3 You may not:

(i) copy only part of the Software; or

(ii) make the Software or the Documentation available to any third party by way of gift or loan or hire;

(iii) incorporate any part of the Software into other programs developed or used by you (unless individually and expressly permitted in that part of the Software or in its Documentation); or

(iv) copy the Documentation.

3. Term

This licence remains in effect unless you terminate it:

1 by destroying the Software and all copies, and the Documentation, or

2 by failing to comply with the Conditions.

4. Limited warranty and disclaimer of liability

1 Acorn warrants that the disc(s) and/or ROM(s) upon which and/or in which the Software is supplied are free from defects in materials and workmanship under normal use for a period of ninety (90) days from the date of purchase, as evidenced by a copy of your receipt. Your Acorn Authorised Dealer will replace a defective disc or ROM if returned within ninety days of purchase.

2 The Software is supplied 'as is'; neither Acorn nor any Developers make any warranty, whether express or implied, as to the merchantability of the Software or its fitness for any particular purpose.

3 In no circumstances will Acorn be liable for any damage, loss of profits, goodwill or for any indirect or consequential loss arising out of your use of the Software, or inability to use the Software, even if Acorn has been advised of the possibility of such loss.

5. General

These conditions supersede any prior agreement, oral or written, between you and Acorn relating to the Software.

Index

Symbols

!ArmBoot 143
!Boot 143
!Boot file 110
!Configure 85
!FontPrint 80
!Fonts 59, 121
!Help(help) xiii
!HForm 219
!Printers 61
!Scrap 121
!System 121
$ 6
* commands
    alphabetical list of 157
    types of 149
*BASIC 234
*Basic 128
*BASIC64 234
*commands 127
*Configure 151
*Copy 139
*Defect 38
*Help 131
*Load 138
*Opt 4 2 110
*Run 138
...$Dir 139
...$Options 139

Numerics

1Mb computers 203
1st Word Plus files
    printing 78
3.5" disc drive 36
5.25" disc drive 36

A

access
    owner read 20
    owner write 20
    public read 20
    public write 20
    setting 20
access details 19
access rights 12, 19
Acorn Desktop Assembler xi
Acorn Desktop C xi
ADFS 3, 31
    star commands 150
adfs 6
Alias$... *see* aliases
Alias$@LoadType 138, 225
Alias$@PrinterType 138
Alias$@RunType 138, 225
aliases 135, 138, 142, 144
alphabets
    alternate 241
anti-aliasing 98
App. 16
application
    running an 7
application directory 7
    boot file 144
    opening 8
application options 139
application program x
Application tasks 104

applications xi
    help with 21
    option parameters 113
Applications discs xv
Applications suite xii
Apps
    root directory 49
Apps directory 3, 48
Apps icon 4
ArthurLib 90
Assembler xi
Atari disc formats 36
Auto boot 110
automatic mode selection 97
automatic type selection 97

B

backdrop 24
background operations 8
backup of discs 38
bad wimp mode 244
BASIC 128
    BBC BASIC xi
    QUIT 231
BASIC64 121
BBC BASIC V 229
BBC BASIC VI 229
beep 96
bitmaps 98, 122
boot file 109
border colours 116
Break key 210
Broadcast Loader 90

C

C language xi
can't delete current directory 244
CDFS 3
character codes 241
Clear selection 13
clearing a selection 10
CLI$Prompt 138, 141
close icon 5, 16
CMOS RAM 151, 207
    reset information 208
colon separator 6
Command Line
    accessing 106
command line x, 127
    getting help xiv
Command Line Mode 6
command scripts 142
command syntax 157
commands
    parameters 133
    syntax 133, 157
comments 135
compacting discs 37
configuration 207
    allocated memory 94
    default values 211
    desktop windows 99
    Econet network 89
    floppy drives 89
    fonts 98
    hard disc drives 88
    hardware 152
    keyboard 93
    memory allocation 152
    mouse 92
    printer port 91
    restoring 87
    restoring defaults 208, 210
    saving 87
    screen 96
    sound 95
    star commands 151
    user preferences 151
Configure 85
    quitting 87
confirm option 13
conventions xv

copying 10
copying files and directories 17
Ctrl Break 210
Ctrl-Reset 210
Ctrl-U 16
current directory 149

D

data lost 244
date and time stamping 23
Delete-power on 208
deleting
    applications 18
    directories 18
    files 18
desktop
    leaving 106, 107
desktop boot files 106, 109
desktop filer menu 3
Dir. 16
directories
    selecting 9
directory 5
    application 7
    creating 16
    display 12
    finding 21-22
    number of entries 177
    operations on 9
    parent 5, 16
    path 5
directory display 4, 12
    closing a 5
disc 31
    defects 37, 221
    errors 37, 41, 221
    floppy 33
    formats 35-37, 178
    formatting 34, 35, 219
    free space on 41
    icon bar menu 31
    name disc 32
    naming 6, 32
    naming a 32
    verifying 40
disc backup 38
disc drive
    hard 219, 223
    single floppy 33
disc error 3A 244
disc modified... 245
dismounting discs 33
display menu 11
displaying files and directories 11
documentation roadmap xvii
DOS disc formats 36
double-click 4, 5, 7
downloading fonts 79
dragging 10, 11
    a box around icons 9
dragging modes 100

E

Econet
    error message 245
    file server 5, 90
    Pathnames 42
    print server 90
    printer 72
Econet file servers 3, 42
Econet network 89
Econet not listening 245
Econet not plugged in (no clock signal) 245
Econet not plugged in message 45
Econet station name not found 245
Econet station number 89, 208
Edit 7
    loading a file into 5
End-user licence conditions for RISC OS 3 249
error messages 243
exclamation mark 7

expansion cards
RAM area 184

F

F12 106
File 16
file 5
file lock
overriding a 18
file locked 245
file not found 245
file open 245
file server
selecting 90
file server menu 43
file transfer
between computers 37
file type 22
PoScript 77
file types
Acorn 225
Acornsoft 227
BBC ROM 227
BBC Uniform 228
industry standard 227
File$Path 138
File$Type_XXX 225
FileCore in use 246
filenames
restrictions in names 18
filer 4, 8
facilities 10
file submenu 16
help option xiv
menu options 10
new directory 16
open $ 16
open parent 16
operations summary 10
options 13, 15
files
access rights 12, 19
boot 106, 137, 142
copying 17
copying using a RAM disc 47
count 21
date stamping 23
deleting 18
deselecting 10
desktop boot 49
finding 21, 21-22
locked 20
renaming 17
selecting 9
selecting all 13
type 22
type of 225
fileserver
free space 44
listing 43
new 45
filing operations 8
filing system 3, 6
moving around 4
type of 3
filing systems 3, 31, 131
selecting 186
star commands 149
floppy disc 31
mounting and dismounting 33
write protect tab 41
floppy discs 3
floppy drives 89
font cache full 246
font manager 122, 235
Font$Path 138
Font$Prefix 139
FontPrint 80
fonts 55, 235
anti-aliased 98, 235, 238
cache 236, 237-238
encoding type 81
hinting 236

mapping 80
mappings 59
outline 122, 235
performance 236
printing with 59
proportional spacing 235
style 55
typeface 55
fonts application 122
force option 15
formatting discs 34
Fortran 77 language xi
free space map full 246
FS list 43
function keys
strings 139

G

graphics resolution 118
grey scales
inverting 116
grouping icons 9
GS Formats 145, 147-148
GSRead / GSTrans *see* GS Formats

H

hard disc 6, 31
formatting a 219
hard discs 3
headphones 96
help xiii
HForm
adding defects 221
errors 221
high-resolution monochrome monitor 209
hourglass
colour of 90

I

IBM disc formats 36
icon bar menu 5
icons 5
sizes of 11
IDE hard discs 88
information about files 21
interactive file copying 99
interlace 97
internal address error 246
internal data error 246
internal instruction error 246
ISO-Pascal language xi

K

kbd: 136
Key$... 139
keyboard 93
auto-repeat 93
Caps Lock 93

L

languages xi
LCD (Liquid crystal displays) 209
licence conditions
end-user 249
line jammed 246
load
file or application 7
lock flag 20
loudspeaker 96

M

macros *see* system variables (macros)
MailMan variables 138
manuals
additional xvi

mapping
encoding type 81
fonts 80
memory 94
font cache 94
font cache limit 95
module area 94
page sizes 152
ram disc 95
system heap/stack 94
system sprites 95
memory allocation 152
Free 104
Next 104
memory usage
optimising 205
menus
greyed out 10
message block is too big... 246
modes
screen 117, 215
Module tasks 104
modules 131
initialising 187
star commands 153
monitor type 97
setting 209
monitor types 209
mouse xv
buttons xv
double click cancel distance 92
double click delay 92
drag delay 92
drag start distance 92
mouse speed 92
moving 10
moving an application 9
multiscan monitor 97

N

NetFS 3, 31, 42
star commands 150
netprint: 136-137
network
bye 44
errors 45
FS list 43
logging off 44
logging on 43
Open $ 44
network file servers 6
Network Filing System 3, 42
network manager 42
network name 42
network ports 71
networks 31, 42
newer option 15
NFS 3
printing over 72
NFS Filer 18
no free printer server... 246
no reply 246
no run action specified for this file type 247
not enough memory for FileSwitch workspace 247
not enough memory for system variable 247
not enough memory in module area 247
not enough memory on system heap 247
not enough memory to start application 247
Not logged on 248
not logged on message 45
null: 136-137

O

Obey files *see* Command scripts
off screen dragging 100
open $ 16
Open $ (root) 5
open parent directory 5

operating system x
outline fonts 59

P

page size 152, 211
palette 115
    restoring default 116, 117
    saving options 117
    setting desktop colours 115
palette file 117
paper sizes 65, 67
paper type 65, 67
parallel port 71
parameters
    defaults 134
    numeric 134
    passing to Obey files 143
parent directory 16
    open a 5
password 42
path elements 6
pathname 5
pinboard 23
    configuration options 28
PostScript printers 59
power on 208, 210
    Copy 209
    Delete 213
    R 211
    T 209
power-on
    self test routine 208
power-on variations 207
printer
    choosing a configuration 64
    communication 71
    connecting 62
    ignore character 91
    name 65, 67
    output to file 71
    port 91
    resolution 65, 68
    setting up 61
    text printing 66, 68
    types of 62
printer busy 248
printer driver
    loading 63
printer in use 248
printer jammed 248
printer manager 59, 61
printer server
    selecting 91
printer timeout 248
Printer$Temp 138
printer: 136
printers
    configuring 65
Printers directory 62
printing 61
    1st Word Plus files 78
    fancy text format 79, 241
    graphics 78
    plain text 77
    queue control 76
    via a network 62
printing a file 75
Programmer's Reference Manual x, xii
programs
    running xi
prompt 128
    - *see* also CLI$Prompt
protected disc 41
protected files 20
public files 20

R

RAM disc 3, 205
    creating 46
    quitting 48
Ram disc
    free space on 48

RAM filing system 46
RAMFS 3, 31, 46
    removing 48
    star commands 150
rawkbd: 136
rawvdu: 136
read flag 20
recurse 20
redirection 135, 136
Relocatable Module Area *see* RMA 153
renaming files and directories 17
reset
    and power-on 207
    hard 210
    the computer 207
    variations 210
    while switching on 208
ResourceFS 3, 31, 48
    icon 48
Restart button 107
restoring default CMOS RAM values 210
return code 139
RMA 153
roadmap xvii
root directory 6
R-power on 208
Run$Path 138, 143

S

scrap application 121
screen 96
    blank delay 97
    blanking xiii
    default mode 97
    mode 118, 144
    special modes 216
    vertical adjust 97
screen fonts 59
screen memory 94
screen modes 117, 215
    colours 215
    graphics resolution 215
    memory 215
    table of 217
    text resolution 215
SCSI 31
SCSI hard discs 88
SCSIFS 3
selecting
    a group of objects 9
    file or directory 5
    files and directories 9
serial port 71
serial: 136
set type 22
Shift-Break 210
Shift-Reset 210
shutting down 107
size of files 21
software products xvi
sort
    types of sorting 12
sound 95, 96
sound system
    star commands 154
special characters 17
sprites
    as backdrop 27
ST506 hard discs 88
standard monitor 209
star commands
    types of 149
star prompt *see* prompt
start-up options 109
station number 42
*Status 151
storage devices 3, 6, 31
subdirectory 4
    open a 5
Super VGA monitor 97, 209
switching on the computer 207

syntax
    network pathname 6
Sys$Date 139
Sys$DateFormat 139
Sys$RCLimit 139
Sys$ReturnCode 139
Sys$Time 139
Sys$Year 139
system application 121
system devices 136-137
System font 235
System memory allocation 105
system resources cannot be found 248
system variables 137
    macros 141
    star commands 153

T

task
    creating 106
    display 103, 105, 106
Task manager 103, 110, 127
Task window 128
task window 130
tasks and memory 103
TCP/IP 3, 18, 72
template file not found 248
time and date
    format 140-141
title bar 5
typeface 55

U

upgrading from RISC OS 2.00 199
username 42

V

vdu: 136
verbose option 8, 14
VGA monitor 97, 209
voice 96
volume 96

W

Welcome Guide ix, 3
wildcards 134
window 4, 5
write flag 20
write protection 41

RISC OS 3

USER GUIDE

Acorn

Acorn Computers Limited

End-User Licence Conditions for the RISC Operating System

Before using your Acorn computer, please read the RISC OS End-User Licence Conditions detailed below.

If you do not agree to the terms and conditions of the End-User Licence, **please do not open this pack**. Repack the unused system and return it to your supplier.

1. Definitions

The following expressions have the meanings given here:

"Acorn" means Acorn Computers Limited, being either owner of all intellectual property rights in the Software, or having the right to grant licences of the Software.

"Developer" means any third party software developer who retains copyright in the Software.

"Software" means the operating system programs, applications, utilities and modules supplied in this product.

"Documentation" means the printed user documentation supplied for use with the Software, whether supplied separately or with this pack.

2. Licence

Acorn grants you a personal non-transferable non-exclusive licence (or sub-licence), as follows:

(1) You may copy the Software for back-up purposes, to support its use on one stand-alone Acorn computer system.

(2) You must ensure that the copyright notices contained in the Software are reproduced and included in any copy of the Software.

You may not:

(i) copy only part of the Software; or (ii) make the Software or the Documentation available to any third party by way of gift or loan or hire; (iii) incorporate any part of the Software into other programs developed or used by you (unless individually and expressly permitted in that part of the Software or in its Documentation); or (iv) copy the Documentation.

3. Term

This licence remains in effect unless you terminate it:

(1) by destroying the Software and all copies, and the Documentation, or

(2) by failing to comply with the Conditions.

4. Limited Warranty and Disclaimer of Liability

(1) Acorn warrants that the disc(s) and/or ROM(s) upon which and/or in which the Software is supplied are free from defects in materials and workmanship under normal use for a period of ninety (90) days from the date of purchase, as evidenced by a copy of your receipt. Your Acorn Authorised Dealer will replace a defective disc or ROM if returned within ninety days of purchase.

(2) The Software is supplied "as is"; neither Acorn nor any Developers make any warranty, whether express or implied, as to the merchantability of the Software or its fitness for any particular purpose.

(3) In no circumstances will Acorn be liable for any damage, loss of profits, goodwill or for any indirect or consequential loss arising out of your use of the Software, or inability to use the Software, even if Acorn has been advised of the possibility of such loss.

5. General

These conditions supersede any prior agreement, oral or written, between you and Acorn relating to the Software.

Acorn